

AMERICAN RED CROSS
TEXT BOOK
ON
HOME HYGIENE
AND
CARE OF THE SICK



THIRD EDITION



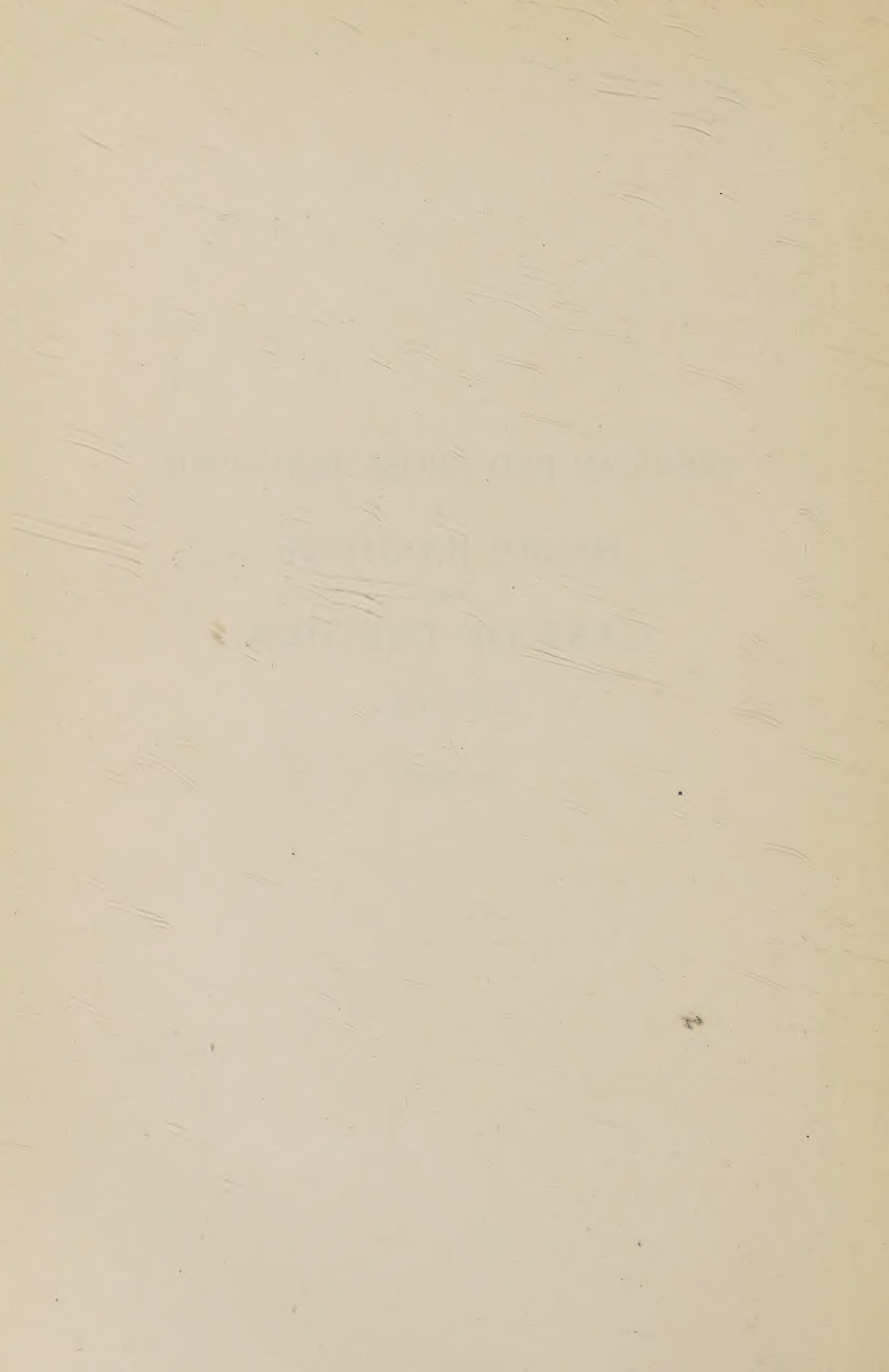
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CARE OF THE SICK

DELANO

(REVISED)



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BY
JANE A. DELANO, R. N.

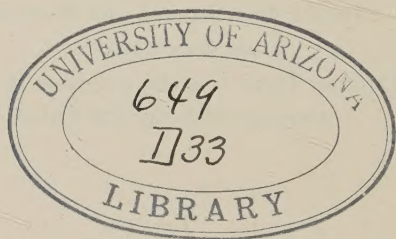
Late Chairman of the National Committee, Red Cross Nursing Service

Third Edition Revised and Rewritten
Under Supervision of
The Director, Home Hygiene and Care of the Sick,
American National Red Cross

600,000

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FOREWORD

It is highly probable that the lasting appeal of Jane Delano's name will rest on the unforgettable service which she rendered in the organization of Red Cross nurses in the confusion of preparation for war. This is natural but it is not enough. A quality rarer than efficiency was hers in the vision of the pioneer which she brought to whatever problem she attacked. The successive editions of this book are clear witnesses to that gift.

The growth of the great health movement has been ponderous and uneven but recent years have uncovered certain unmistakable definitions. Of these perhaps the most notable are the emphasis on personal hygiene and health habits and the recognition of the indispensable role of the nurse in the administration of measures for the prevention of disease and the improvement of public health. The most telling expression of these tendencies is seen in the rapid development of school instruction in Hygiene throughout the country and the part which the nurse is playing in the process. Now, the chief problem before us is no longer to arouse public interest but to provide sound and tested methods and means for the work.

The promise of all this was clearly grasped by Miss Delano and was reflected in the original issue of this book in 1913 and in the development of the field work of the Red Cross nurses to which she gave such unremitting thought and energy. We now have from the

hand of Mrs. Baker a comprehensive text book written from the modern view point and one which appropriately perpetuates the name of a great contributor to our civil life.

The American Red Cross once more lays every one under obligation.

LIVINGSTON FARRAND.

CORNELL UNIVERSITY.

PREFACE

This text-book, first known as "Elementary Hygiene and Home Care of the Sick," was originally written in 1913 by the late Jane A. Delano, R. N., then Chairman of the National Committee on Red Cross Nursing Service, in collaboration with the Secretary of that Committee, the late Isabel McIsaac, R. N. Their professional and other experience peculiarly fitted them for a task of benefit to humanity.

Both were leading nurse-educators of their day; each had served as superintendent of the Army Nurse Corps and as president of the American Nurses Association; side by side they had labored in the development of the American Red Cross Nursing Service and the extension to the lay public of its program of health and sanitation. These two far-visioned women had, therefore, been made to appreciate the force of Florence Nightingale's dictum that every woman should be a "health missionary." So they compiled the original text-book, the income from the sales of which is now being applied to the maintenance of certain public health nurses in isolated and needy communities, known, in memory of Jane A. Delano's parents, as Delano Red Cross Nurses.

When the World War created the overwhelming demand in 1917 for courses to fit women to care for the sick in their own homes, thereby releasing graduate nurses for military service, the text-book was revised

to meet such needs by the late Anne Hervey Strong, R. N., director of the School of Public Health Nursing, Simmons College, Boston, Mass. By means of the instruction thus offered, thousands of women and girls were equipped to cope with the influenza epidemic of 1918 under the supervision of graduate nurses and physicians. The second edition served this purpose admirably.

But the past three years has witnessed yet another development. In its ever-expanding field the Red Cross Course, known today as "Home Hygiene and Care of the Sick," has given women a knowledge of the laws of physical and mental hygiene as well as the self-confidence to pass from the defensive to the offensive in the war upon man's age-long enemies—dirt, disease and ignorance. Prevention and prophylaxis are powerful forces. The Service has now grown to such proportions that scarcely a phase or field of our national life, from the settlement house in the congested slum to the most remote, rural hamlet, has failed to profit by it. Its certificated instruction has been presented in every type of institution and to every class of citizen; in continuation schools by means of modified courses; in high schools as a required subject, often correlated with Home Economics, Hygiene, Physical Education or some science. Its value in teaching health standards and personal hygiene in schools for the blind and deaf is inestimable; its importance as a factor in the Americanization of the foreign-born, considerable.

Mothers in the home and women in business, Red Cross workers and club women have gained immeasurably in individual health and efficiency through its teachings, have been equipped for wider spheres of

usefulness and have carried the gospel of improved standards of hygiene to still larger groups. In rural sections the public health nurse—whether employed by the Red Cross, the local health department or private agencies—finds in teaching the classes in Home Hygiene and Care of the Sick ideal points of contact and the means which make possible closer cooperation with local Red Cross chapters and better understanding by the community of her mission in the cause of health. So are prepared ever-increasing groups of people to bring about higher and better standards of child welfare and public health and the American National Red Cross meets its obligations to promote those measures which will build up and maintain a virile nation, sound physically and therefore vigorous mentally.

In order to meet the constantly increasing demand for this Course and to provide for the schools of today a text-book commensurate with the needs of the curriculum and the current problems of individual and family life, the present edition becomes necessary. In this new revision, Mrs. Isabelle W. Baker, the Director of the Service, recognizing the sound psychology of stressing the positive rather than the negative, the preventive instead of the remedial aspects of the instruction, has had in mind the wisdom of an old, old adage—accepted theoretically generations ago but left to the present decade to be applied practically and in its widest significance—that an ounce of prevention is worth a pound of cure.

The lessons are not, and never were, intended to take the place of a course in nursing or to equip the student to compete with the graduate nurse. They

have been worked out for the express purpose of instructing women, girls and boys to keep well themselves and to create wholesome environments; to check the spread of disease by early recognition of its symptoms enabling precautionary measures to be taken; to banish pestilences by eliminating the causes of them; to awaken a community conscience and enlighten public opinion for group action against these menaces; and to show the mother-to-be the importance of caring for herself in the interests of her child and of safeguarding him after arrival all through the years of infancy and childhood so that there may come into being a healthier and happier race. This is the purpose of instruction in Home Hygiene and Care of the Sick, and the cause that the present edition of the text-book goes out to serve.

CLARA D. NOYES.

Director, Nursing Service,
American National Red Cross.

Sept., 1925.

ACKNOWLEDGMENT

To mention by name all those who have so generously given of their time and thought in the preparation of the present edition would be to catalogue many of the leading educators and health specialists of the day. It seems fitting, however, to pay particular tribute to Dr. Taliaferro Clark of the U. S. Public Health Service and to Miss Elinor Lee Beebe, A. B., R. N., formerly of the Division of Child Hygiene, Kansas State Board of Health, now Assistant Director of Home Hygiene and Care of the Sick, who have rendered patient and painstaking service in this behalf. Appreciation is also due W. B. Moses & Sons, Washington, D. C., who fitted up a room for photographic purposes.

I. W. B.

CONTENTS

	PAGE
FOREWORD.	v
PREFACE.	vii
ACKNOWLEDGMENT.	xi

CHAPTER I

INDIVIDUAL HEALTH AND HYGIENE	1
Heredity. Environment and health. Habit and health. Nutrition. Elimination. Posture. Personal cleanliness. Mouth hygiene. Sleep. Rest and fatigue. Recreation.	

CHAPTER II

HEALTH AND HOME.	19
The kitchen. The bath room. Sleeping rooms. Furnishings. Ventilation. Lighting. Cleanliness of houses. Standard practice on bedroom care. Laundering. Garbage. Sewage. Water supply. Insects.	

CHAPTER III

THE PRACTICAL BED IN THE HOME.	39
Bedsteads. Mattresses. Care of the mattress. Pillows. Sheets. Pillow cases. Blankets. Comforters and quilts. Bedspreads. Care and making of the bed in the home. Daily airing.	
THE BED FOR THE SICK	49
Bedsteads. Mattress. Rubber sheets and pillow cases. Sheets. Covering. Making the occupied bed. Turning a patient in bed. Changing a patient's pillows. Lifting a patient in bed. Moving a patient from one bed to another.	

CHAPTER IV

CAUSES AND PREVENTION OF SICKNESS	62
Communicable diseases. Transmission of disease germs. Control of communicable diseases. Carriers. Defenses of	

the body. Immunity. Non-communicable diseases. Diseases of middle life. Physical examinations. Tuberculosis. Cancer. Mental illness.

CHAPTER V

INDICATIONS OF SICKNESS 84

Importance of observation of sickness. The habit of observation. Meaning of symptoms. Need for routine method. Classification of symptoms. Objective symptoms. Temperature. Pulse. Respiration. General appearance. Special senses. Voice. Tongue. Throat. Gums. Cough. Appetite. Vomiting. Excretions. Urine. Weight. Sleep. Mental conditions. Subjective symptoms. Pain. Other subjective symptoms. Records.

CHAPTER VI

BABIES AND THEIR CARE 100

The saving of infant lives. Value of prenatal care. The need for organized effort. Birth registration. The care of the baby. Preparation and equipment for the care of the baby. Toilet tray. The nursery. The baby's bed. Clothing. Infant's layette. The baby's bath. Special care. Normal excretions. Fresh air and sunshine. Exercise. Sleep. Feeding the baby. Diet. Intervals of feeding. Water. Nursing bottles and nipples. Method of feeding. Weaning. Growth and development. Average size. Muscular development. Development of special senses. Development of speech. Development of teeth. Habit training of babies. Crying. Regularity of bowel movements. Bladder control. Over-stimulation. Plays and toys. The day's schedule.

CHAPTER VII

THE CARE OF CHILDREN 141

The preschool child. Protection from infection. Dangerous period. Quarantine. Immunization. Habits. Adequate nutrition. Measure of nutrition. Physical defects. Proper training. Individual and parental cooperation. Repetition necessary to fix health habits. Food habits. Mental habits. Health habits and sickness. The school child. Protection against disease. Correction

of physical defects. Eyestrain. Enlarged or diseased tonsils and adenoids. Defective hearing. Defective teeth. Nutrition. Elimination. Cleanliness. Posture. Sleep. Play and exercise. Mental hygiene. Plan of daily living

CHAPTER VIII

THE HOME ATTENDANT AND HER DAILY ROUTINE. 167

The home attendant. Duties of the attendant. Dress of the attendant. Conservation of the strength of the attendant. Responsibility of the attendant. Daily routine in the sick room. Good management in the sick room. Before breakfast routine. Morning care. Sitting up in a chair. Visitors. Evening care. Comfort during the night. Special problems and responsibilities of the attendant. Records.

CHAPTER IX

EQUIPMENT AND CARE OF THE SICK ROOM 183

Choice of a sick room. Furnishing. Ventilation. Heating. Lighting. Cleaning. Order.

CHAPTER X

BATHS AND BATHING 193

Cleansing baths. The tub bath. Bed bath. Care of mouth and teeth. Care of the hair. Cleansing the hair of a bed patient. Hot foot bath. Cooling sponge bath.

CHAPTER XI

APPLIANCES AND METHODS FOR THE SICK ROOM . . 206

Devices for giving support. For the patient without a head rest. For the patient sitting up in bed. Bed cradles. Bed tables. Home devices. Purchased appliances. The care of the patient's skin. Bed sores. Early signs of pressure. Bedpans. Use of bedpans. Cleansing the bedpan. The cleansing enema. Method of giving a simple cleansing enema. Method of giving an enema to a baby. Cleansing and care of equipment.

CHAPTER XII

PAGE

APPLICATION OF HEAT, COLD AND COUNTER-IRRITANTS	220
Inflammation. Measures for relief of inflammation. Hot applications. Dry heat. Moist heat. Cold applications. Dry cold. Moist cold. Counter-irritants. Mustard paste. Mustard leaves. Other counter-irritants.	

CHAPTER XIII

MEDICINES AND OTHER REMEDIES.	235
The household medicine cabinet. Care of medicines. General rules. Contents of the medicine cabinet. Cathartics and laxatives. Stimulants. Miscellaneous remedies. Disinfectants. Ointments. Poisonous drugs. Prompt disposal of unused medicines. First aid materials. Miscellaneous appliances. Larger appliances. Care of rubber goods. The proper use of medicines. Amateur dosing. Patent remedies. Administration of medicine. Measuring and giving medicine. Aids in making medicines more palatable. Sprays and gargles. Inhalation. Inunction. Suppositories. The contents of the home medicine cabinet.	

CHAPTER XIV

FEEDING THE SICK	257
The digestive process. Liquid diet. Soft diet. Light or convalescent diet. Full diet. Serving food for the sick. Feeding a helpless patient.	

CHAPTER XV

SPECIAL POINTS IN THE CARE OF THE CONVALESCENT, THE CHRONIC PATIENT, AND THE AGED.	266
The convalescent patient. Need for gradual progress. Direction of thought toward normal living. The stimulus of out of door life. The value of purposeful occupation. The chronic patient. The needs of the chronic patient. Suitable diet. Daily care. Problems of adjustment. Need for purposeful activity. Care of the aged. Provision for warmth. Temperature and ventilation of room. Food. Elimination. Physical activity. Need for special safeguards. Mental changes. Difficulty of adjustment. Physical care.	

CHAPTER XVI

CARE OF PATIENTS WITH COMMUNICABLE DISEASES 281

Transmission of disease germs. Incubation period. Care of patients with colds or other slight respiratory infections. Nose and throat discharges. Diet. Regulation of bowels. Daily care. Prevention. Care during more serious infections. Separate room. The prevention of transmission of disease. Hospital care. Care and supervision of the tuberculous patient. Children's diseases. Dangerous after effects. Means of prevention. Control of communicable diseases (also see chart). Disinfection. Care of nose and throat discharges. Care of discharges from the bowels and bladder. Care of bath water. Care of hands. Care of utensils. Care of linen. Termination quarantine. Terminal disinfection. Fumigation.

CHAPTER XVII

COMMON AILMENTS AND EMERGENCIES. 298

Conditions affecting the digestive tract. Diarrhea. Nausea and vomiting. Disorders affecting the ears. Earache. Insects. Foreign bodies. Conditions in which the eyes are affected. Foreign bodies in the eye. Styes. Conditions affecting the nervous system. Convulsions. Fainting. Headache. Hiccough. Shock. Sleeplessness. Sunstroke and heat exhaustion. Conditions in which the skin is affected. Burns and scalds. Insect bites and stings. Nettle rash. Prickly heat. Wounds. Abrasions. Other emergencies. Bruises. Chills. Croup. Nosebleed. Menstruation—painful or profuse. Snake bites. Sore throat. Sprains.

CHAPTER XVIII

COMMUNITY HEALTH. 322

Sanitary care of food. Public conveniences. Provision for cleanliness. Protection of life and health. Recreation. The board of health. Individual cooperation.

APPENDICES. 330

Weight and height charts—Woodbury.
Instructions to parents on the care of children's hair and scalp, (Department of Health, New York City).
Pasteurization of Milk.

GLOSSARY 336

INDEX 341

CHAPTER I

INDIVIDUAL HEALTH AND HYGIENE

The problem of health in its truest sense, is a closely interwoven part of the general problem of adjustment to life. The laws of health and hygiene are for the most part the laws of proper living, and should be thus regarded. Many factors aid in the functioning of these laws, factors involving bodily vigor, mental balance, broad outlook and the understanding of relationships. Back of these are the contributions of hereditary endowment, and of the home and community environment. All of these, as guided and vitalized in purposeful activity, work together to produce individual health.

Heredity.—Of all the considerations that determine health, heredity is the one unalterable factor. Although certain characteristics are obviously hereditary—complexion, height and mental and physical traits in great variety—yet in the past heredity has been little understood. However, it is now possible to predict with some degree of accuracy the inheritance of certain characteristics. In consequence, heredity may no longer be used as a scapegoat for these faults and failings which are not beyond an individual's own control.

Many diseases, formerly considered hereditary because their actual causes were unknown, are now known to be communicable. Thus, it is now understood that tuberculosis is not hereditary, although

babies and small children are rapidly infected by association with tuberculous parents. No germ diseases are inherited in the strict sense of the word; although a baby may be infected with syphilis before birth if his father or his mother has the disease.

It is true that certain tissue weaknesses of the body seem to be hereditary, and in consequence one family is more susceptible to digestive disorders, another to diseases of the lungs, a third to deafness, and so on. Moreover, general low vitality may be inherited. It should be emphasized, however, that hereditary weakness does not inevitably lead to disease. Many persons have succeeded in preventing the development of active disease by guarding against strain in directions where they are weak by inheritance and by building up strengthening habits to overcome these weaknesses.

Nervous disorders of every degree of severity, from slight nervous instability even to certain forms of insanity, may be due wholly or in part to hereditary nervous defects. However, it is now generally recognized that by proper training and modes of living, serious nervous disorders can be prevented in many persons who are hereditarily predisposed to them. Feeble-mindedness is believed to be inherited in the majority of cases and is incurable.

Environment and Health.—Perhaps the greatest power in preventing the development of hereditary or other weakness into definite defect is the influence of an ordered, favorable environment. By environment is meant everything outside the body that affects it. More personal perhaps is the direct influence of the environment of the home and of the community. It is possible in this text to consider only a few of the

many environmental factors which affect the health of individuals. The problems of the home environment and the community environment as related to health are dealt with in succeeding chapters.

Habit and Health.—The positive achievement of health, as well as perhaps the overcoming of hereditary weakness, is dependent upon the building up of well ordered daily habits of living. Although the body adjusts itself to widely varying conditions and even to unfavorable ones, the importance of forming desirable habits along every line conducive to health is self-evident. Since such habits may be largely subject to the control of the individual, we may say that health should be attainable to practically every normal person. Even to those handicapped by some gross defect, consistent and continued effort will usually bring about at least a nearer approach to health.

Habits favorable to health are more easily formed and undoubtedly produce greater results when begun in early childhood or preferably even in babyhood. Their continuance on through the growing years and through adult life, with whatever modifications are necessitated by advancing years, then merely serves to perpetuate those normal conditions early established.

It is never too late however for any person to set about the conservation of his health by the establishment of correct habits. In this the gradual accustoming of the body to modification of routine practices is the safe and sane method to be used. Sudden or radical changes in living, particularly among people no longer young, may do harm. New and violent systems of exercise and of weight reduction often

involve considerable risk. Also, the temptation always exists to emphasize one group of habits at the expense of others. The promotion and the maintenance of a state of health lies in the relating and balancing of the many factors upon which it depends. The present topic concerns itself therefore with a brief discussion of some specific habits in their relation to the health of the individual.

Nutrition.—Adequate nutrition is essential for health as the body must have food to build tissue; to regulate body processes; to promote growth and health; and to provide sufficient energy for the activities of the body. The substances for these processes are obtained by the body only from the food material which is eaten. However, it would be a mistake to think that the body can be kept in a state of health through food alone. Good eating habits as well as sunshine, fresh air, personal cleanliness, daily exercise, cheerful surroundings, wholesome mental attitude and play, all lend their aid to the work of the assimilation of food and the elimination of waste matter. Furthermore the presence of certain physical handicaps—such as poor teeth, diseased tonsils, and adenoids, or poor posture, may interfere with the utilization of food by the body.

Fats, sugars, starches, protein, mineral matter and vitamins are all necessary. As an economical source of energy and protein, bread stuffs and other grain products are of value; but they are not satisfactory in their mineral and vitamin content. As supplementary sources of energy, sugars and fats should be largely used. Some fats are important also as sources of fat-soluble vitamin as well as energy. As a source of protein or fat, or both, meats, including fish and poul-

try, are largely used but these show in general the same mineral and vitamin deficiencies as do the grains. Fruits and vegetables are highly important as sources of mineral and vitamin content but are greatly variable in their protein and energy values. As an important source of energy, protein, mineral elements, and vitamins, milk is useful, and is generally considered the most efficient of all foods for supplementing the deficiencies of grains and insuring the all-round adequacy of the diet. In planning the day's diet, such foods should be included as will supply digestible, "fuel" foodstuffs in amounts sufficient when burned in the body to supply the necessary number of calories of energy; enough protein of suitable sorts; adequate amounts and proper proportion of the so called mineral elements; and enough of each of at least three kinds of vitamins.

Nutrition is a subject beyond the scope of this book. It is nevertheless one of the most important factors in the attainment of the highest degree of health.

Elimination.—Careful attention should be paid to elimination through the bowels, kidneys and skin, since health and nutrition are to a great extent dependent upon the prompt and regular disposal of body wastes. The bowels can best be regulated by the application of certain rules as regards habit formation, diet, drinking of water and exercise.

The *habit* of evacuating the bowels at a regular time each day, if established in early childhood and consistently practiced, will prevent constipation among most healthy people. Such a habit can also, by persistent effort, usually be established even in adult life. The important factors in the formation of this habit are the choice of a suitable hour, preferably

before or after breakfast, and the daily observance of that hour without fail. The drinking of a glass or two of water immediately upon rising will, by stimulating peristalsis, assist greatly in the formation of a prompt, regular habit of elimination. In fact, drinking water freely, before breakfast and at intervals all through the day as well as after the evening meal, is most important for this purpose, as well as being generally beneficial in assisting the functions of the skin, in the regulation of the body temperature and in the disposal of all waste material.

The individual *diet* greatly influences regularity of elimination. Certain bulky foods—"roughage"—are sometimes called "regulators" because of their efficacy in this regard. These include the green and the root vegetables, such as spinach, cress, celery, cabbage, carrots, onions and turnips, and the whole grains used in breads and as cooked breakfast cereals. Oils and fats are valuable; and sweets in moderation, as honey and molasses and foods yielding vegetable acids as lemons, oranges and tomatoes are advised. With different individuals there is variation as to the digestibility of certain foods and also as to the degree of their laxative effect. For this reason, in any well balanced diet those foods having satisfactory laxative effect should be noted and used as found beneficial.

In regulating elimination, *regular exercise*, such as walking, swimming, horseback riding, rowing and the various active out-of-door games and sports is of much benefit. The strengthening of the abdominal muscles by exercise and the stimulation of the general circulation combine to regulate all the bodily processes.

Intelligent and persistent application of the foregoing principles, if continued regularly for sufficient time,

will usually be sufficient to prevent constipation and its attendant discomforts of headache, disinclination to work and irritable temper. If long continued, constipation becomes serious, both from congestion and displacement of pelvic organs, and perhaps from absorption of some poisonous substances resulting from decomposition of food. The habitual use of cathartic and laxative drugs is most unwise because they give only temporary relief and tend to aggravate the general condition.

Nevertheless, it is of great importance that constipation should be corrected. When individual effort fails, it is the part of good judgment to consult a physician in this regard. Having consulted a physician, it should be remembered that the correction of such a condition as constipation requires the utmost cooperation on the part of the patient, the following of the advised program usually over a considerable period of time, and sometimes some self-denial.

Posture.—Correct use of the bodily mechanism is equally important to the individual in early childhood, in the school years and in adult life. The principles governing its attainment are essentially the same at any age, though perhaps the greatest emphasis is placed upon their application during the years of maximum growth. These principles are therefore presented in connection with the discussion of the health of the school child, pages 156 to 161. It may be here stated that while it is true that habits of posture receive a certain set in childhood and youth, yet their conscious continuation in adult life is most necessary. Carefully planned corrective measures persistently employed, on the other hand will do much, even in later life, to remedy the results of faulty early habits.

Poor posture in adult life frequently is associated with displacement of various internal organs. Such a condition leads to pressure and consequent interference with normal circulation, thus causing general congestion and a slowing up of all the vital processes. For this reason it is most essential that in adult life correct bodily posture be maintained, or if necessary, that poor habits of earlier life be corrected.

Personal Cleanliness.—Cleanliness of the body surface is necessary in order to remove waste and other materials, to improve bodily tone and to give a sense of well being. The main functions of the skin are three: to protect underlying tissues, to excrete waste matter, and to regulate bodily heat by checking or allowing the evaporation of perspiration. After perspiration has evaporated, solid matter is left upon the skin, and oily matter also is deposited on it by the glands that keep the skin lubricated. The removal of these accumulated materials by the free use of warm water and soap at least once a day is beneficial to general health and is highly desirable for many other reasons.

Warm baths are soothing in their effect and are appropriate at bed time particularly, as mentioned elsewhere, for persons inclined to sleeplessness. Very hot baths, especially if prolonged, may be harmful and are usually entirely unnecessary. The daily cleansing bath at body temperature followed by brisk rubbing, is of unquestionable benefit and should be a regular habit. It may be followed by a quick splash or a shower of cold water to stimulate the reaction of the skin in closing the pores.

Cold baths are stimulating though not entirely efficacious for cleansing purposes. For the young and active they are valuable tonics if properly used. The

tonic cold bath is preferable upon rising. It should be of short duration, and followed by a brisk rub with a coarse towel. A shower or a rapid sponge bath is for many to be preferred to the tub bath.

Delicate or elderly persons should use cold baths only by a physician's advice. Chilly feelings, slow reaction or depression following should be the signal for any person to discontinue or to modify the method of a cold bath.

There is no clear connection between general cleanliness and disease. Frequent bathing does not protect a person from any particular disease, except in so far as bathing necessarily includes washing the hands. If typhoid germs for example have actually been swallowed, a clean bodily exterior is of no avail in preventing typhoid fever or in diminishing its severity. The same is true of other diseases.

But it is impossible to emphasize unduly the importance of clean hands. Hands are prime offenders in distributing fresh bodily secretions, and germs both innocent and harmful. All health authorities agree on this point.

"Perhaps 90 per cent of all infections are taken into the body through the mouth. They reach the mouth in water, food, fingers, dust, and upon the innumerable objects that are sometimes placed in the mouth. The fact that the great majority of infections are taken by way of the mouth gives scientific direction to personal hygiene. Sanitary habits demand that the hands should be washed after defecation and again before eating, and fingers should be kept away from the mouth and nose, and that no unnecessary objects should be mouthed. All food and drink should be clean or thoroughly cooked. These simple precautions alone would prevent many a case of infection." (Rosenau: Preventive Medicine and Hygiene, p. 366.)

As Dr. Chapin says:

"Probably the chief vehicle for the conveyance of nasal and oral secretion from one to another is the fingers. If one takes the trouble to watch for a short time his neighbors, or even himself, unless he has been particularly trained in such matters, he will be surprised to note the number of times that the fingers go to the mouth and the nose. Not only is the saliva made use of for a great variety of purposes, and numberless articles are for one reason or another placed in the mouth, but for no reason whatever, and all unconsciously, the fingers are with great frequency raised to the lips or the nose. Who can doubt that if the salivary glands secreted indigo the fingers would continually be stained a deep blue, and who can doubt that if the nasal and oral secretions contain the germs of disease these germs will be almost as constantly found upon the fingers? All successful commerce is reciprocal, and in this universal trade in human saliva the fingers not only bring foreign secretions to the mouth of their owner, but there exchanging them for his own, distribute the latter to everything that the hand touches. This happens not once, but scores and hundreds of times during the day's round of the individual. The cook spreads his saliva on the muffins and rolls, the waitress infects the glasses and spoons, the moistened fingers of the peddler arrange his fruit, the thumb of the milkman is in his measure, the reader moistens the pages of his book, the conductor his transfer tickets, the "lady" the fingers of her glove. Every one is busily engaged in this distribution of saliva, so that the end of each day finds this secretion freely distributed on the doors, window sills, furniture and playthings in the home, the straps of trolley cars, the rails and counter and desks of shops and public buildings, and indeed upon everything that the hands of man touch. What avails it if the pathogens do die quickly? A fresh supply is furnished each day." (Chapin: *The Sources and Modes of Infection*, p. 188.)

The careful disposal then of all body discharges and secretions and the thorough washing of the hands after any likelihood of contact with them, is essential to the health of the individual and of those with whom

he comes in contact. Individual cleanliness, particularly in this regard, is necessary for the protection of health and the prevention of disease.

Mouth Hygiene.—The practice of mouth hygiene, which aims at the prevention of conditions that require the attention of a dentist, covers the following points:

1. Adequate inspection.
2. The practice of cleanliness.
3. The use of a detergent diet.
4. Early conservative, preventive dentistry.

By "*adequate inspection*" is meant the examination of the teeth and adjacent tissues of the mouth, preferably by a dentist. This may however be done by nurses, physicians, dental hygienists, school teachers, or by the mother herself. The inspection should be made at frequent intervals, for diseased conditions of the mouth progress rather rapidly to a serious state. Pain is not manifest until much damage has occurred. Annual examination is not adequate. School inspection, made two or three times a year, is probably all we can expect in the way of inspection on a large scale.

The "*practice of cleanliness*" includes cleaning of the teeth by the individual. It is common practice to insist upon cleaning the teeth upon arising and particularly upon retiring at night. The tooth brush should be of appropriate size for the individual. It is rarely that too small a brush is used. The tufts of bristles should be well separated on the brush. The texture of the bristles will depend upon mouth conditions. A medium bristle should be recommended unless the case is in the hands of a dentist, when the dentist's advice should be secured for that individual case. The dental profession as a whole approves the

use of tooth pastes and tooth powders such as are commonly prepared and sold on the market.

It is well to insist that tooth brushes be kept scrupulously clean, preferably hung in the sunshine, exposed to the air. Salt is an acceptable and an inexpensive dentifrice.

Various methods of cleaning the teeth are advocated by mouth hygiene enthusiasts. However, the aim of all is to remove the debris, especially from the spaces between the teeth. Whatever method will accomplish this result without doing damage to the soft tissue, will be acceptable. The following is a simple formula for brushing the teeth:

Brush the upper teeth downward,
Brush the lower teeth upward,
Inside and outside, and
Scrub the grinding surfaces.

After cleansing with the brush, rinse the mouth thoroughly with water. Clean the brush and hang it in the sunshine.

The "*use of a detergent (cleansing) diet*," is conducive to the healthy condition of the teeth. The practical teaching is the use of foods that clean the teeth by the mechanical art of chewing.

The fourth and last item is "*early, conservative preventive dentistry*." By "early" is meant beginning as soon as teeth are in the mouth. In practice, very little work is done for children under five years of age. However, children should be taken to the dentist very much earlier. By "conservative" is meant that an effort should be made to retain all the teeth as long as nature intends the teeth should be kept in the mouth, provided these teeth are in a state of health.

By "preventive" is meant the care of first permanent molars and temporary teeth so early and in such manner that further decay does not follow. It is generally accepted that cement fillings are very short lived and are not satisfactory. Metal fillings, well made and well finished, will answer every requirement.

The latest development in mouth hygiene is the realization that pre-natal attention is absolutely necessary for the development of sound teeth and that normal body building must be sustained throughout the pre-natal period, as well as infancy and childhood.

Sleep.—A sufficient amount of sleep is essential to health. Individual requirements vary widely in this regard, but it is generally accepted that eight hours are necessary to the well being of practically all adults. Some, in order to work most effectively, may require more, but few can consistently put forward their best effort with less than this amount. Every person can know with considerable accuracy his own need. It is then a matter of good judgment to observe this need. It is necessary for those who are under-weight or who are working under strain to have extra sleep. Sleep should always be sufficient that the individual may feel refreshed and ready for a day's work.

Conditions favorable to sound sleep may be arranged in any home. Good ventilation is necessary. In fact, the value of sleeping in the open air is so widely recognized that out of door sleeping is becoming more and more common. When carried on under conditions comfortable and suitably arranged for warmth and protection, out of door sleeping probably gives the body its most complete relaxation and thus provides for rapid recuperation.

Ability to sleep is largely habit. The conditions mentioned in the foregoing paragraph are conducive to sleep. Further than that, daily out of door exercise, the cultivation of regular hours and of a serene mind, and the elimination of late eating and other disturbing factors, particularly of worry and confusion, are sufficient in most cases. Such factors are largely within the control of any individual, and may, through constant effort, be regulated at will. Perhaps in some instances more persistent cultivation of serenity and control may be necessary, but such attainment does lie within the realm of accomplishment.

A bath at bed time, neither hot nor cool but of body temperature, is frequently an aid to sleep. Sleep-producing drugs should never be taken except by a doctor's prescription.

Rest and Fatigue.—Rest is necessary at intervals in order for the bodily mechanism to continue effective work. A fatigued person is a poisoned person. Rest frees the body of this poison.

Muscular exertion burns the fuel constituents of the body, as we recognize by the greater heat generated within us during muscular exertion. Waste products, resulting from this burning process, accumulate if not removed, and clog the body in somewhat the same way that ashes and cinders clog a furnace. The fatigued person remains fatigued, consequently, until the accumulations of waste matter are removed by the normal action of the lungs, skin and kidneys.

Fatigue is caused by both mental and physical work, and when excessive, affects the nervous system most disastrously. The body can and should respond to occasional extra drafts on strength and endurance. Its flexibility and power of adjusting to varying condi-

tions may even be stimulated thereby. Even slight fatigue however if continued and especially if associated with anxiety or worry, has caused many nervous and mental breakdowns.

Work carried beyond the point of normal fatigue requires a proportionately longer time for recovery. For example, if the point of fatigue has been reached by a certain finger muscle after fifteen contractions, and if half an hour is required to rest it completely, one might suppose that one hour would rest it after thirty contractions. This is not so, however. After thirty contractions two hours are required, or four times as much rest for twice the amount of work, if continued beyond the point of fatigue. Laboratory experiments and experience alike show that this principle holds true in other forms of fatigue. Thus the output of factories has been shown in many instances to be greater, other things being equal, when operatives work eight hours a day than when they work longer. Excessive hours in any kind of work are the poorest economy.

Fatigue is increased in direct proportion not only to muscular exertion but also to the amount of speed, complexity, responsibility, monotony, noise and confusion involved in an occupation. Ability to bear fatigue differs greatly with different people, as ability varies to bear other kinds of strain. Fatigue is much less in work which presents a variety of activity. Care should therefore be taken wherever possible to vary at intervals the exact type of work. This will result usually in a gain of time, due to the relaxation accompanying the change. A short time devoted daily to complete relaxation following the midday meal will usually result in increased vigor as well as a

better output of work. In addition to these rest at night and on Sunday, and the annual vacation should be enough to keep a person in good condition. If not, there is probably something wrong with the worker's health, the nature of his work, or his adaptation to his particular kind of work. This statement is not only true of persons regularly employed, but of those living at home, including children in school, women in "society," and especially mothers of families.

Recreation.—Owing to the speed, complexity and worry of modern life among all classes, and to the monotony of work in industry and in office, recreation has become a matter of vital importance for everyone. Some muscular activity, preferably in the open air, is needed daily by every healthy person. Recreation should be unlike the regular occupation. Walking or horseback riding, for example, furnishes the exercise needed by sedentary workers employed all day in artificially lighted or perhaps poorly ventilated offices.

The element of pleasure is essential in recreation. For this reason, the benefit to be derived from participating in out of door games and sports, such as golf, tennis, baseball, swimming and fishing, is usually much greater than from formal exercise. It is true nevertheless that many individuals derive much good from formal exercise into which the element of pleasure and play is projected perhaps by the stimulation of an interesting class or of rhythmic music. Generally speaking, that particular form of exercise, out of door game or sport which gives the keenest enjoyment will be most beneficial and therefore preferable.

The benefit from daily recreation and out of door exercise lies not alone in the maintenance or the

building up of muscle tone. The general stimulus to all bodily functions brought about by the influence of the natural forces of sun and air, by the speeding up of the circulation and by the mental zest of the game, goes far to produce a complete rehabilitation of mind and body. The effect is therefore not alone the immediate conservation of bodily health. In recreation of real worth there is added that reserve vigor, that stability of nerve tone, that balance of forces, bodily and mental, which produce the serenity and composure necessary to complete living.

QUESTIONS AND EXERCISES

1. What is meant by hereditary susceptibility to a disease?
2. How may hereditary susceptibility to a disease be combated?
3. What part does environment play in the conservation of health?
4. What are the chief functions of food when taken into the body?
5. Name the most important causes of constipation. What bad results often follow constipation?
6. What measures should be taken to promote elimination?
7. What are some of the bad results of poor posture?
8. What are the main functions of the skin.
9. In what ways may personal cleanliness be best maintained?
10. What effect has frequent bathing, in protecting a person from any particular disease?
11. In what way are most infections introduced into the body? What precautions should be taken to prevent them?
12. Name four points in the practice of mouth hygiene which may supplement the services of a dentist?
13. Explain the correct use and care of a tooth brush?
14. Under what conditions is sleep most beneficial?
15. Name several factors that may cause fatigue? Why is exercise, either mental or physical, bad economy when extended to the point of fatigue?
16. What elements must enter into recreation to make it really beneficial?
17. What measures can you take to increase your degree of health and personal efficiency?

FOR FURTHER READING

A Mind That Found Itself—C. W. Beers.

Food: Why? What? How?—(American Red Cross Pamphlet No. 725.)

Laws of Health and How to Teach Them—C.-E. A. Winslow and Williamson.

National Health Series:

iii. Personal Hygiene—Allan J. McLaughlin.

x. Quest for Health—James A. Tobey.

xii. Food for Health's Sake—Lucy H. Gillett.

xiii. Health of the Worker—Lee K. Frankel.

xiv. Exercises for Health—Lenna L. Meanes.

xvi. Your Mind and You—George K. Pratt.

Newer Knowledge of Nutrition, The—E. V. McCollum.

New World Health Series:

Primer of Hygiene—John W. Ritchie and Joseph S. Caldwell.

Primer of Physiology—John W. Ritchie.

Primer of Sanitation—John W. Ritchie.

Nutrition in Relation to Health and Efficiency—(iii. Positive Health Series.)

Personal Hygiene Applied—J. F. Williamson.

Personal Hygiene and Home Nursing—Louisa C. Lippitt.

Positive Health Series:

i. Newer Conceptions of Health.

ii. Individual and the Community.

v. The Heritage of Life.

vi. Recreation.

CHAPTER II

HEALTH AND HOME

The home constitutes the important part of environment for most persons. This is true of children in particular, since they spend the greater part of their time in or about it, and get there the foundation upon which their health in later years depends. For persons employed away from home, industrial and occupational hygiene is hardly less important, but those subjects are too extensive to be considered here.

Most people live where they must, and few have any part in planning the construction of their own houses. In choosing a house, however, one should remember that rooms where sunshine never enters are unfit for continued occupation. For children, in particular, fresh air and sunshine are essential, and it may be economy in the end to pay a comparatively high rent for an apartment having sunshine during at least a part of the day.

Country life usually gives the opportunity for the best living conditions in so far as fresh air and sunshine are concerned. It is necessary in any locality however that the home practice and the family routine be so arranged as to make use of the resources which are at hand. Provision must be made for admitting and utilizing fresh air and sunshine, especially in sleeping and in living rooms.

The Kitchen.—In planning the construction or in the selection of a house, it is important that the kitchen

be arranged, if possible, for only the uses of a food laboratory. Facilities for laundry and wash room may be provided elsewhere. The best teaching now advocates a kitchen small in size, with compact, built-in furniture, arranged in the order most convenient for the usual kitchen processes. Open shelves and closed cabinets may be used as preferred. The various articles of small equipment are more convenient when grouped together at the place where they are to be used.

The Bath Room.—The bath room for general use is more convenient when centrally located with direct entrance from a hall. A good quality of plumbing and bath room fixtures is economy and should if possible be provided. Obviously it is important for the prevention of the spread of disease that there be separate towel racks for each member of the family and for a guest if he uses the same bath room. The bath room is the logical location for the home medicine cabinet which is discussed more fully in Chapter XIII, page 235. Adequate provision is also desirable for toilet articles which are kept permanently in the bath room, as well as a place for those in temporary use there. A small, built-in linen closet for towels and other bath supplies is a convenience, and built in articles of furniture in general, especially in the bath room, add to orderliness and facilitate cleaning.

Sleeping Rooms.—For the sleeping rooms, privacy and quiet are essential. They should be arranged in convenient relationship to the bath room, so that passage from one to the other does not necessitate going through a living room or other sleeping room. Comfort and health will both be served by careful consideration of facilities for adequate ventilation of sleeping quarters. In most climates, provision for

cross ventilation is an aid to comfort. Sleeping porches are used more and more commonly. The glassed-in sleeping porch, thus protected in stormy weather, offers the possibilities of a sun porch in winter and is especially useful in arranging the out of door hours of small children.



FIG. 1.—An attractive bedroom which can easily be transformed into a room for the sick person.

Furnishings.—In the general planning of any part of house furnishings, it is well to remember that simplicity, durability and ease in cleaning are points of first consideration. Comfort and attractive appearance are however perhaps equally important as a means of securing rest to both body and mind.

For efficient ordering of the household, it is recognized also that modern conveniences and labor-saving devices have become a necessity. In whatever location and on whatever budget the home is planned, some provision as complete as possible should be made for the saving of time and of energy. Such provision in the selection and arrangement of furnishings will greatly assist in the attainment of comfort, cleanliness, order and pleasure—which are essential to the home. A careful study by the housewife of her own problems will usually show what is needed and what changes should therefore be made in order to secure these essentials and thus to make for efficient living by all members of the family.

Ventilation.—Ventilation has a direct bearing on health, although, contrary to former belief, the actual amount of oxygen in the air is not ordinarily the most important factor. Even badly ventilated rooms contain more than enough oxygen to support life. The factors of prime importance in ventilation are temperature, humidity, air movement, and the number of persons in a given space since the greater the distance from one another the less is the probability that diseases will be spread.

Room temperature should not be above 70° F. and, except for the aged or sick, it is better to be about 65°.

Some *moisture* in the air is desirable. The amount needed is from 50% to 55% of the total moisture that the air can hold at a given temperature. We have no apparatus to decrease humidity in the air of houses, and in summer we are obliged to endure humidity, if excessive, no matter how uncomfortable we may be. But in winter the air in most houses is too dry, so that the mucous membranes of the nose and throat

often become irritated and susceptible to infection. Most heating systems, particularly in small buildings, make no provision for supplying moisture. Keeping water in open dishes on or near radiators is often recommended, and would greatly improve the condition of the air, if the dishes were kept filled.

The following is a simple but effective device to increase humidity. Roll an ordinary desk blotter into a cone about 8 inches in diameter at the base, and keep it constantly submerged for about one

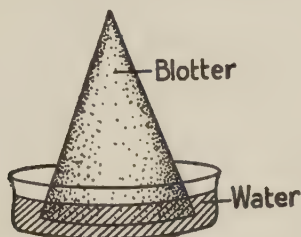


FIG. 2.

inch in a dish of water. The water rises to the top of the blotter and a large surface for evaporation is thus afforded.

Air motion should be constant though not necessarily perceptible. Air about the body, if motionless, acts like a warm, moist blanket, preventing the passage of heat from the body. Stagnant air is enervating.

The three factors, *heating*, *humidity* and *air motion*, must be considered together. Every person requires each hour about 3,000 cubic feet of air, and the problem of heating and ventilating is that of providing this amount in gentle motion, at a temperature of about 65° F., and of humidity from 50–55 per cent. Higher temperatures and stagnant air cause disinclination to

work, headache, nausea, restlessness or sleepiness, and if continued are likely to result in loss of appetite and anemia. The tuberculosis movement has clearly shown the benefits both for the sick and the well of living in the open air, and has caused great and beneficial changes within a generation. The more time spent in the open air the better. Since however most persons who work must spend the greater part of the day indoors, ventilation is a matter of great importance.

Although fresh air enthusiasts are still too few, yet some go to the extreme and think that because cool air in motion is good, the colder the air and more violent the motion the better. On the contrary, chilling the whole body or a part of the body lowers resistance. Draughts of air have no bad effects upon persons in good health, particularly those accustomed to changes in temperature. But draughts are likely to be injurious to aged or sick persons and babies, by diminishing their resistance to such infections as common colds and pneumonia. It should be remembered however that draughts or cold alone cannot cause colds. The specific germs must be present.

Lighting.—Ordinary daylight gives the best form of lighting and should be adequately supplied in every home. In relation to the amount of window space, the wall finish is important. A dull finish of light tone, buff, cream color, other yellow tints and white will reflect about one half of the light. The dull finish rather than the glazed prevents the glare which might otherwise be experienced from the light surface. On the other hand, dark walls absorb light, and for this reason are not so desirable.

Good illumination may be secured through artificial systems which, as nearly as possible approximate

daylight. Indirect lighting which gives an even distribution throughout the room is perhaps the nearest approach to natural daylight. In this method the light is projected upon the ceiling and by it reflected over the room. For any type of close work however, as in kitchen, library, bath or bedroom, a suitable side, desk or floor light should be planned. The points to be considered are the height, the directing of the rays of light upon the work, the placing to avoid shadows on the work and the shading of the eyes from direct glare. In addition to these considerations the light itself should be steady, not flickering. The effectiveness of the lighting arrangements may be judged to some extent by the actual assistance afforded in seeing the work and by the condition of the eyes after somewhat prolonged use. Continued use causes fatigue of the eyes, especially when illumination is poor. Within limits, the amount of light needed depends upon the nature of the work. Too much light, especially when accompanied by direct glare, is harmful, and when not accompanied by eye defect, probably causes some of the effects such as nausea and headache, commonly attributed to poor ventilation.

Cleanliness of Houses.—A clean, well-cared for house is desirable from every point of view, but certain kinds of cleanliness affect health more than others.

The most scrupulous care should be exercised wherever food is stored or prepared. The *kitchen* is in reality a laboratory. In it, either intelligently or otherwise, are formed chemical compounds which have a far-reaching effect upon family health. From the standpoint of health no other room in the house is so important. It should be bright, airy, easy to clean, and

easy to keep clean. In cleaning kitchen tables and woodwork, water should not be allowed to soak into cracks and dark corners, carrying with it particles of food for the nourishment of bacteria and insects. Linoleum, if used to cover the floor, should be well fitted at the edges to prevent water from running underneath. There should be neither cracks nor crevices in wall or floor, and no dark corners or out-of-the-way cupboards in which dust, food particles, and moisture can accumulate. Such conditions not only attract mice and roaches, but furnish favorable soil for the development of moulds and fungi which by their growth affect food deleteriously. Waging a constant warfare against the development of bacteria constitutes a large and important part of good housekeeping.

All *cooking utensils* should be thoroughly washed, scalded and dried before they are put away. Enameled or agate ware which has begun to chip should be discarded. Dish-cloths and towels should be washed and boiled after each using, and if possible dried in the sun.

Every place in which food is kept should have constant care. The *refrigerator* is particularly important. Its linings should be water-tight, and the drain freely open at all times. Otherwise the surrounding wood will become foul and saturated with drainings. At least once a week it should be entirely emptied and cleaned. The racks should be thoroughly washed in hot soapsuds to which a small amount of washing soda has been added, rinsed in boiling water, dried and placed in the sun and air. All parts of the refrigerator should be washed in the same manner, especially grooves and projections where food or dirt may

lodge. The drainpipe should be flushed, the whole interior rinsed again with plain hot water, thoroughly dried with a clean cloth, and left to air for at least an hour. The drainage pan should be washed and scalded frequently. Food showing the slightest evidence of spoiling should be removed from the refrigerator at once.

A thoroughly clean, well kept *bath room* is a definite step in the prevention of infection. The original planning of the room, as mentioned on page 20, adds much to ease in keeping it clean. There should be sufficient clean towels, wash cloths, soap and other supplies always at hand. For the tub and lavatory, perhaps the best cleansing agent is kerosene followed by soap and hot water and a final thorough rinsing with hot water. The toilet bowl should be clean both inside and out. The daily cleansing with long-handled toilet tongs and paper or a long-handled brush, thorough flushing and the use of washing soda, soap powder or perhaps a disinfectant, is a process not to be omitted.

Thorough *cleaning of rooms* involves soap, water, sunshine, air and elbow grease, just as it did before germs were discovered. Cleaning means actually removing dirt and dust, not merely stirring it up to settle again. Consequently dry sweeping and dusting are ineffectual. Vacuum cleaning, and sweeping and dusting with oiled, "dustless" or damp mops and dusters are good. Deodorants and disinfectants do not take the place of ordinary cleanliness.

Dust does not carry living disease germs to an appreciable extent. The fact is now well established that diseases formerly thought to be transmitted by dust or even supposed to travel directly through

the air, are carried on tiny particles of moisture and mucus expelled in coughing and sneezing. This mode of transmission is called droplet or spray infection. It is one of the most active agents in spreading certain kinds of communicable diseases, particularly such as influenza, colds and tuberculosis.

Nevertheless dust in motion is harmful. It irritates the lining membranes of the nose, throat, bronchial tubes and lungs, even causing tiny wounds through which disease germs enter. Thus tuberculosis is especially prevalent among stone cutters, felt workers and others engaged in dusty trades. Metallic dust is especially harmful, because it is harder and sharper than dust from organic substances like wool and cotton. Furthermore, presence of dust indicates a low standard of cleanliness. People who tolerate it generally tolerate uncleanness in other forms, more serious though less apparent.

Cleaning would not be so great a problem if most houses were not littered with such dust catchers as carpets, so-called ornaments, carved and upholstered furniture, banners, draperies and a vast collection of motley articles. In actual practice, things that are difficult or expensive to clean seldom are cleaned. Heavy upholstered furniture for example is considered unhygienic, not because it cannot be, but because it is not cleaned. William Morris' advice to exclude from houses all articles not known to be useful or believed to be beautiful would, if followed, add years to the lives of housekeepers. Modern efficiency insists that the house itself in all its details shall be planned for simplicity and ease in keeping clean and orderly. It is no less essential that the furnishing of every part of the house shall likewise meet this requirement.

Cleaning is greatly facilitated if proper tools well planned for each need are provided and kept in a convenient place. These need not be many, but they should if possible include a vacuum cleaner with attachments. Long and short handle brushes and mops and a long handle dustpan are adapted for their various uses and, because they require fewer adjustments of the body, are less tiring to the worker.

Also in cleaning, much time and energy are saved if a program or plan of the most effective, most convenient and speediest method of accomplishing any one task is made and followed. The following plan has been worked out by Mrs. Christine Frederick, Household Efficiency Engineer.¹

STANDARD PRACTICE ON BEDROOM CARE

Tools: Vacuum cleaner or carpet sweeper; long handle dustpan; dustless duster; long handled string mop.

Method:

1. Pick up clothing, shoes and soiled linen (bed clothes thrown back in advance; windows open).

2. Make bed, leaving valance, if any, tucked up.

3. Remove burned matches, papers, etc. from bureau, table, etc.; arrange and dust toilet articles, placing waste in dustpan box.

4. Sweep rug with carpet sweeper.

5. Dust furniture, window and door trim, and baseboard edge.

6. Use string mop around rug edges and under bed, replacing chairs, etc. at same time; let down bed valance.

7. Pull shades to half, allow sufficient ventilation.

¹ "Household Engineering," Scientific Management in the Home, Mrs. Christine Frederick, American School of Home Economics, Chicago.

Laundering.—The proper laundering of clothing and household linens, removes dirt, destroys disease germs and prepares the article ready for use without undue wear or deterioration of the material. Its proper conduct is therefore conducive to health, well being, pleasure and economy.

Laundering involves two main processes, washing and drying. Washing itself includes sorting, removing stains, soaping, cleansing with hot soapy water, boiling, rinsing, bluing, wringing, starching and hanging up. Related to the whole process of drying are the various procedures of sprinkling, folding, ironing, airing and laying away. The laundry should provide well planned facilities for conducting each of these two separate processes, and as in the kitchen, the grouping of equipment and its arrangement, according to the order in which it will be used, are important in saving time and steps. The laundry should by all means, if any such arrangement can be made, be equipped with running water and a drain for carrying away waste.

In washing, the sorting of the clothes, their cleansing and boiling are of great importance as a means toward cleanliness and the destruction of germs. Clothes should be thoroughly rinsed and except in the case of woolens, silks and delicate colors, dried in the sun. Specific directions as to the best methods of washing and drying clothes may be secured from pamphlet 1099, "Home Laundering" published by the United States Department of Agriculture, Washington, D. C.

Garbage.—Garbage has little bearing on health, except in so far as it affords a breeding place for flies. If it contains disease germs it may be dangerous, but statistics show that garbage handlers, although they

can hardly be called especially careful, are not more subject to sickness than other men of their class. Garbage disposal is chiefly a question of preventing a public nuisance.

In the home, the draining of water from any waste materials will lessen the bulk of garbage and make its disposal less disagreeable. The use of a garbage pail having a foot lever is convenient and cleanly. Also, lining the pail with heavy paper which can be burned will aid in keeping the garbage pail clean. A tight cover is always necessary. In instances where adequate prompt disposal of garbage is not provided by the community, or where it is not quickly utilized as food for chickens or stock, a convenient means of burning can be secured at small expense.

Sewage.—Discharges from the bowels and bladder contain various germs, and constitute one of the most important routes by which germs of such diseases as typhoid fever, dysentery, cholera and others, travel from person to person. Keeping sewage out of the water supply is consequently of great importance. Where a system of sewage disposal exists, the responsibility of making the system adequate and thus safeguarding public health rests upon the community as a whole. Communities ordinarily get just as much, or just as little, as they are willing to endure of typhoid fever or other filth diseases.

In places having no system of drainage privies are commonly used. They can be made harmless, as army camps prove, but they require scrupulous care. Fecal matter must be prevented from draining into wells and other water supplies, and must be screened from flies. The privy should be located at a distance from the well. The minimum distance that is safe

depends in each case upon the nature of the soil and the direction of the natural drainage. Even when the privy is situated below the well on sloping ground, drainage may still occur from the privy to the well. However, a well-made, properly located pit privy is usually safe unless it is near a limestone formation. The dry earth system is satisfactory only in places having no efficient public scavenger system. In

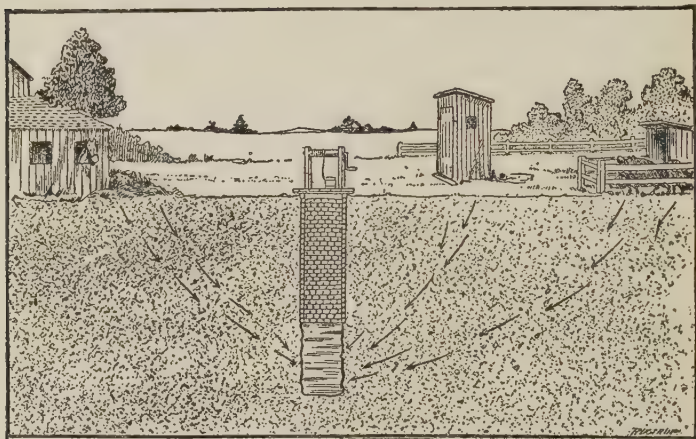


FIG. 3.—Heavy pollution, of the soil about the well from the privy, stable and hog pen will in time seep through the ground into the well. (U. S. Public Health Bulletin No. 70.)

this system pails or cans are used to receive the discharges, which are then covered with sand, ashes, earth or, preferably, chloride of lime. The buckets are frequently emptied and the contents buried at least one foot below the surface of the ground. The objection to this method for more extended use is that proper care of the cans is a disagreeable duty of which most households soon tire.

In country homes and in towns where the community provides no adequate sewage system, probably the most satisfactory plan in the long run is the

installation of a septic tank with water flush system. This can be accomplished at reasonable cost according to plans and specifications furnished by the United States Public Health Service. (Bulletin 625.)

Water Supply.—Cities and towns, as a means of safe guarding of health, should of course have public supplies of pure water. Contamination of water, when it occurs, is caused chiefly by sewage from cesspools, privies and drains. All well or spring

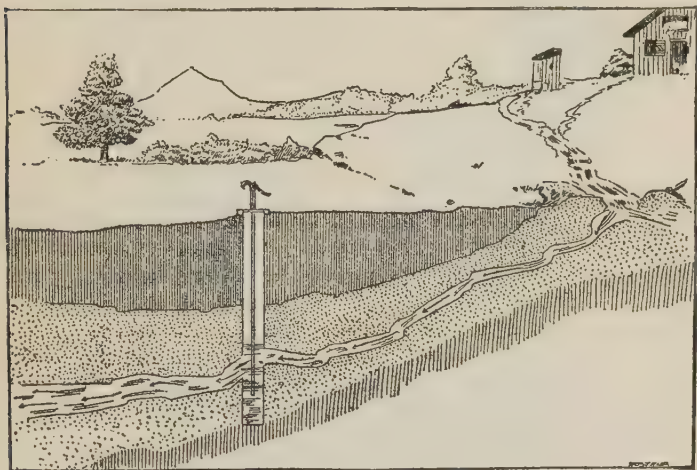


FIG. 4.—Wells in limestone soil can be polluted by surface water carrying filth from near at hand or a long distance away. (*U. S. Public Health Bulletin No. 70.*)

water must be constantly watched and Boards of Health of city and of state will examine, usually without charge, samples of water and report upon their safety for drinking purposes. Upon request the health officer will in most instances supply a container and directions to be followed in sending a specimen of drinking water for examination.

Every effort should be made to insure a regular supply of pure water in every house. It is not satis-

factory to have two kinds, one for drinking and one for other purposes, since mistakes are sure to be made, especially by children. Some families who use only bottled or filtered water for drinking purposes habitually run the risk involved in using impure water from the tap for cleaning the teeth. Boiling water for ten

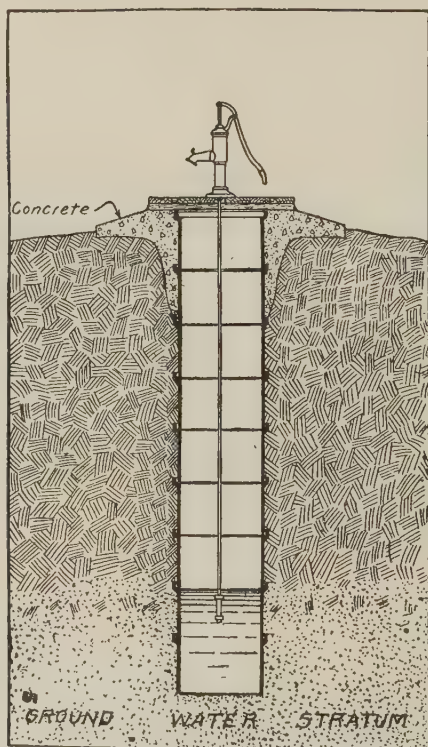


FIG. 5.—A safeguarded shallow well. (See *U. S. Public Health Bulletin* No. 69.)

minutes kills all pathogenic (disease producing) germs, but this method is inconvenient on a large scale and is not practical for continued family use.

Freezing destroys most germs, but ice is not necessarily free from bacterial life, and should be used in

drinking water only when known to be free from impurities. Neither does freezing milk, cream or any other liquid necessarily kill germs that may be contained in it.

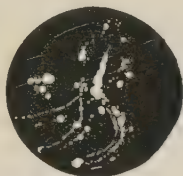
Insects.—Flies, cockroaches and other scavenging insects may carry disease germs with the filth on their

FLIES CARRY FILTH



HAIRY FOOT
OF A FLY

BECAUSE
BRED IN
FILTH



BACTERIA COLONY
IN FLY'S FOOTPRINT.

A FLY OFTEN CARRIES 6,600,000 BACTERIA
ON ITS HAIRY BODY.

FROM
MANURE PILE
GARBAGE CAN
PRIVY VAULT
SPITTOON
SICK ROOM



TO
MILK
BABY'S LIPS
BABY'S BOTTLE
FOOD
YOU

A FLY IS THE MOST DANGEROUS
ANIMAL KNOWN

FIG. 6.—(*International Harvester Company.*)

feet and in their bodies and thus infect food on which they walk. Typhoid, cholera, dysentery and other diseases have been carried by flies. Flies are always a menace and should not be tolerated. Moreover, the thought of their coming to food directly from

manure piles and privy vaults is disgusting. Houses should be thoroughly screened in the fly season, but it is necessary also to destroy the nuisance at its source. The chief breeding places of flies are garbage cans and manure piles. If the garbage can is water tight, closely covered, frequently emptied, and thoroughly cleaned, flies will not develop in it; about ten days must elapse from the time when the egg is laid until the insect is ready to fly. Fly traps to fit on the garbage can are useful. Manure should be screened and removed frequently, or it can be treated chemically. Methods for treating it are given in "Preventive Medicine and Hygiene," Rosenau, p. 255, and in Bulletin No. 118, of the U. S. Dept. of Agriculture, July 14, 1914.

Other diseases carried by insects are malaria and yellow fever, each by a special species of mosquito; typhus fever, by lice; and bubonic plague, by rat fleas. Various diseases less common in this country are carried by other insects.

Household insect pests of every kind and rats, mice and other vermin, should be not only excluded from houses but as nearly as possible exterminated. The mosquito constitutes a widespread menace to health particularly throughout the southern sections of the United States. As the direct means of the spread of malaria, its danger is self-evident. It is necessary to screen houses with special care against mosquitoes. Still more important however is it to destroy their breeding places. The numerous campaigns which have been carried on by Boards of Health as well as by other agencies to assist in this work of malarial prevention, have not only helped to control the situa-

tion but have also aroused public opinion against the mosquito. As a prevention of malaria, it is of the utmost importance that the mosquito pest be eliminated. Also, even when mosquitoes are not carrying disease germs their bites may be harmful since they are often rubbed, especially by children, until the skin is broken, and various infections may enter through the wounds.

QUESTIONS AND EXERCISES

1. List practical labor saving devices for the home as available,
(a) In rural districts; (b) In cities.
2. What are the essentials of good ventilation?
3. What is the proper temperature for a living room? What are the effects of higher temperatures? Of lower temperatures?
4. What methods are most satisfactory for general room lighting? For close work?
5. Make a plan for cleaning (a) kitchen; (b) refrigerator; (c) bathroom.
6. List tools and supplies needed for various tasks of house cleaning.
7. List the essentials of a well planned home laundry.
8. What provision should be made for the proper care of garbage before disposal?
9. What are the dangers of impure water? How can the safety of water be determined? How can impure water be made safe?
10. What insects and vermin are harmful in the home? How may they be excluded or exterminated?

FOR FURTHER READING

Bulletins on Sanitation and Health in the Home and Its Environment may be obtained from the U. S. Public Health Service, Washington, D. C., The U. S. Department of Agriculture, Washington, D. C., and from the State Health Departments.

Health and Disease—R. I. Lee.

Health in Home and School—M. A. Bigelow and J. Broadhurst.

Home and Community Hygiene—J. Broadhurst.

How to Live—I. Fisher and E. L. Fisk.

Human Mechanism, The—T. Hough and W. T. Sedgwick.

Man and the Microbe—C.-E. A. Winslow—(i. National Health Series.)

Preventive Medicine and Hygiene—M. J. Rosenau.

Primer of Sanitation—John W. Ritchie.

Value of Pure Water—G. E. Whipple.

CHAPTER III

THE PRACTICAL BED IN THE HOME

The practical bed in the home is planned to meet the following demands: comfort of the occupant, ease in cleaning and keeping clean, durability and attractive appearance. Since so large a proportion of every twenty-four hours is spent in sleep, and since the complete relaxation and renewal gained in that time determines to a great extent our efficiency in the remaining part of every day, especial care should be given to choosing and equipping the bed in the home.

Bedsteads.—Beds of enameled iron are most easily kept clean and are usually strong, durable, and easy to move. As now made, they are usually not too heavy to be easily handled, and they may be obtained in wood finish to match any desired bedroom furniture. White and ivory are attractive and are practical for many purposes. The style should have few angles and ridges, and all joints should be smooth and well finished. Such a bedstead is easily kept clean by frequent wiping with a damp cloth. Any enameled iron may be thoroughly cleaned with soap and water.

Wooden beds are desired by some people. They are, however, more difficult to keep clean. They more readily absorb moisture and odors, and if made with solid frames prevent a free circulation of air. Moreover, it is almost impossible to render fit for use again a wooden bed into which vermin have once found

their way. Convertible pieces of furniture and the various types of folding beds are, as used, sometimes unhygienic, but they can be bought with comfortable springs and mattresses and a secure means of support. Special care is necessary in airing and sunning the bedding and mattress of a convertible bed. Steel castors which are strong and ready of response are found on most beds. Twin or single beds give greater comfort and consequently a more complete rest to the occupant. These are now made in a standard width of thirty-nine inches, length six and a half feet.

Springs of coiled wire or flat linked wire give resilience and firm even support without the sagging toward the center usually encountered with the best woven wire springs. Any of these may be easily cleansed by a small paint brush dipped in kerosene. The gray metal of springs is now treated with a composition which decreases the tendency to rust, but nevertheless very little water should be used upon them. Springs which show some rust may easily be enameled in the home. Box springs are desired in some homes. The cleansing of these is more difficult, but by especial care and frequent use of the vacuum cleaner they may be kept in a sanitary condition.

Mattresses.—Various substances are used in the manufacture of mattresses. Curled hair and felt made of pure staple cotton have both proved satisfactory. Although mattresses made of these materials are more costly than those made of other materials they may be used almost indefinitely if they are occasionally made over. A useful mattress made from straw is sometimes found in country districts. Such a bed is thoroughly hygienic, for the worn straw may be burned and the tick washed and refilled with clean

straw; but straw beds are generally hard and lumpy. The least desirable of all mattresses is the old fashioned feather bed, and it should never be used if a better can by any possibility be obtained; but a feather bed should not be arbitrarily taken away from an old person accustomed to its use, unless his welfare is really at stake.

A good quality of closely woven ticking should be chosen. The more neutral colors are less likely to be faded by light and moisture, than the bright shades of the art tickings. A closely woven ticking of the blue and white stripe is dependable.

Care of the Mattress.—A mattress should be brushed frequently especially around the tufts and edges with a whisk broom kept for this purpose only. A vacuum cleaner or a carpet beater may be used once a week and the mattress left exposed to the sun and air for a half day. With the care of the mattress must be considered also its every day protection. A quilted pad of the same size as the mattress gives protection and added comfort. A worn quilt or blanket folded and basted in correct size, may be utilized for this purpose. A loosely fitting slip cover of white denim or of good quality of unbleached sheeting made open at one end, with ties or snaps, is practical and can be removed and washed as often as necessary.

Pillows.—Individual preference creates a wide variation in the type of pillow desired. For economy a standard size may be chosen, made of a good grade of closely woven ticking. Art tickings fade easily and also fail to hold feathers satisfactorily. Down is properly retained only by the best grade of linen ticking. Choice as to down or the various grades of

feathers varies with the individual liking and with the expenditure allowable. Occasionally, hair pillows are preferred, especially in warm weather. Silk floss is sometimes advised for regular use by those people who are affected by the use of feathers. Rubber air pillows are a convenience in traveling, either by train or by motor and in camping, but are not durable and must be given particular care.

If a pillow tick becomes soiled, the feathers may be transferred to a clean tick by making an opening about six inches long in the end of each pillow, sewing the ticks together, and then shaking the feathers from one tick to the other. The soiled tick can then be washed. If the feathers themselves have become soiled they should be renovated by a cleaner. Pillows, like mattresses, should be frequently brushed, sunned, and aired. They should not be held in the mouth while a clean pillow case is adjusted.

Sheets.—Sheets of ample proportions are necessary for comfort, and important for sanitary reasons as well. For a bed of the dimensions mentioned in this lesson sheets should be three yards long, and two yards wide. A safe rule for any bed is to have the sheets one yard longer and one yard wider than the mattress. A sheet of these dimensions is large enough to be tucked under the sides and foot of the mattress, while at least twelve inches are left to fold over the blankets at the top. Cotton sheets are better than linen for general use and are far less expensive.

Pillow Cases.—Pillow cases are generally made of cotton, but persons who can afford the cost frequently prefer linen, especially in hot weather. Unless fastened with buttons or tapes, a pillow case should be

several inches longer than its pillow. It should be wide enough to slip on easily, but not so wide that it wrinkles or allows the pillow to turn. If it is too small the pillow will become hard and uncomfortable.

Blankets.—All wool blankets are both light and warm, and are consequently the most comfortable bed covering. Unless however, they can be dry cleaned frequently, it is better to select blankets made from one part wool and two parts cotton. Blankets containing equal parts of wool and cotton are warmer, but are injured more by washing. Very light blankets of wool or outing flannel are useful in summer. Double blankets should always be cut in two and bound at the ends, since single blankets are easier than double blankets to handle and wash. Two light blankets are warmer and more comfortable than one heavy blanket.

Comforters and Quilts.—Heavy cotton comforters are burdensome without being correspondingly warm. Eiderdown quilts or those padded with wool are good for use when sleeping out of doors, or in a room kept at a low temperature. Bed covers that cannot be laundered readily should be protected by basting on both sides of the top a wide piece of light weight muslin or linen, which can be removed and washed.

Bedspreads.—White dimity bedspreads are desirable, since they are light in weight, easily laundered, and inexpensive. Heavy or valuable bed spreads should be removed at bedtime. In this case, an extra sheet placed directly under the spread when the bed is made, will leave the bed covering protected when the spread is removed. A bedspread should be large enough to cover bedding and springs at sides and foot and should reach easily to the head of the bed.

CARE AND MAKING OF THE BED IN THE HOME

The bed in the home should be thoroughly cleaned and aired every week or more frequently if necessary, and such changes of linen or covering made as desired. All methods of making beds are based upon a few underlying principles. The aim in every case is to obtain the following results with the least expenditure



FIG. 7.—1, First step of an envelope corner.

of time and labor: first, to secure comfort and to eliminate all causes of friction, irritation, or pressure; next to keep the covers firmly in place, so that the bed will not easily become disarranged; then to protect the mattress and the covers and last, to secure as good an appearance as possible.

Making the Bed in the Home.—Remove and fold the spread. Remove the pillows and covers one at a time, and place them on chairs, near an open window and in the sunshine if possible. Brush the mattress and then set it up on its ends to air, or turn it back over the foot board. Wipe the bedstead if iron, with a



FIG. 7.—2, Tuck the lower part well under the mattress.

damp cloth. Replace the mattress after it has aired, turning it from side to side and from end to end on alternate weeks. Cover the mattress, unless it is enclosed in a slip cover, with a white quilted pad or an old blanket. Spread the lower sheet over the mattress, so that the middle fold of the sheet lies upon the center of the mattress in a straight line from the head of the bed to the foot. Tuck the sheet well under,

first at the top and then at the bottom, drawing it so that it is firm and tight. Tuck the sheet under at the side, folding its corners to make a neat finish like an envelope. Go to the opposite side. Draw the sheet smooth, and tuck it under the mattress as tightly as possible in the same way as on the other side.



FIG. 7.—3, Completing the envelope corner.

Spread the upper sheet over the bed so that its upper edge reaches to the upper edge of the mattress, and its middle crease lies over the middle line of the mattress, right side down, so that the smooth side of the hem will be uppermost when the sheet is turned over the blankets. Place the blankets so that their upper edges lie a little higher than the place where the

lower edge of the pillow will come, or according to the desire of the individual. Tuck them in firmly at the bottom and sides. If the blankets are not long enough to tuck in at the foot, place the lower blanket at the desired shoulder height and the upper blanket five or six inches lower than the first. When tucked in,



FIG. 8.—Fold the sheet over to protect the blanket.

the upper blanket holds the lower one in place fairly well. Fold the upper sheet down over the blankets. Place the spread evenly and smoothly, tuck it under at the foot if desired and turn its corners neatly. Last of all, shake the pillows, put on the cases and place them on the bed.

Practice is necessary before it is possible to make a bed quickly and well. One should learn to work in an orderly way, without confusion or unnecessary motion.

Daily Airing.—The method of daily airing of the bed in the home is partially dependent upon the amount of time which may be devoted to it. For the busy housewife or the business woman, perhaps the follow-



FIG. 9.—Daily airing with window open top and bottom.

ing routine may be suggested as the minimum. The spread usually has been removed and folded the night before. Place one or two chairs at the foot of the bed; throw back the covers and sheets, and brush off the mattress. Open the windows and allow the bedding to air until after breakfast, when the covers may be spread up smoothly and secured firmly as directed

before. The spread is then put on, and the pillows placed as desired.

THE BED FOR THE SICK

The common saying that the best bed for an invalid is his own bed contains an element of truth. Taking from a patient his own accustomed bed, even when a



FIG. 10.—Bed open and ready for the patient.

better is substituted, sometimes disturbs him greatly and makes him feel that he is indeed very ill. Nevertheless, a suitable bed is essential to the proper care of a helpless person, and no patient should continue to use an unsuitable one, unless his illness is slight and also likely to be of very short duration.

Besides being comfortable, a bed suitable for the sick must be clean and easy to keep in a hygienic condition. The springs should be firm. The mattress should be elastic and should give an even support without lumps and hollows. The bed covers should be clean, light weight and warm; the pillows should be sufficient in number not only to make the head and shoulders comfortable, but also any other part of the body in need of support. Moreover, the bed should be so placed and of such a kind that the work of caring for the patient may be rendered as easy as possible for the attendant. In every household at least one bed suitable for a sick person should be available in case of need.

Bedsteads.—A single bed of white enameled iron is most easily kept clean and usually most practical in other ways as well for the use of a sick person. A bed to be used in sickness should have the following dimensions: length 6 ft. 6 in., height 24 to 26 inches, width 36 to 39 inches. If a bed is either too high or too low, the labor of lifting and moving the patient is greatly increased. If the bed is too narrow, the patient is insecure. If the bed is too wide, its center is difficult or impossible to reach without leaning or kneeling upon it; and if too short, it will prove uncomfortable for a tall person. A bed that is too low may be raised by placing under the springs four heavy boxes of the same height. It may also be raised upon heavy wooden blocks which any carpenter can easily make, and which are well worth a little trouble to obtain. In the top of each block a hollow several inches deep should be made into which the leg of the bed will fit after the castor has been removed. A broad firm stool or a low chair may be provided for a patient

who has difficulty in getting in and out of a high bed. Castors may be removed from the foot, if the bed glides too easily.

Beds with complicated attachments for moving patients are not recommended for family use. They are expensive, likely to get out of order, seldom needed, and generally unsatisfactory. In some surgical cases a bed with a firm, flat surface is necessary. Such a surface may be secured by placing between the firm mattress and the springs two boards slightly separated, or one wide board with holes bored in it to afford ventilation.

Mattress.—If a patient is long confined to bed, a fresh mattress should occasionally be substituted so that the regular one may be removed, well brushed, beaten, and left exposed to the sun and air for a time. In all cases of sickness the mattress must be adequately protected. Neglect is inexcusable and may cause expense and trouble as well as discomfort to the patient.

The following may be used to protect the mattress or pillows: large quilted pads, small pads of cotton batting covered with old muslin or cheese cloth, slip covers for the mattress, rubber sheets and pillow cases, old blankets and quilts that may be washed easily. Heavy wrapping paper, builders' paper, and newspapers serve well in emergencies, or for a short time.

A mattress that is badly soiled should be sent to a cleaner and made over; it cannot be cleaned properly at home. It is generally possible to remove blood stains, if they have not soaked through the ticking, by applying a thick cream made from raw starch and cold water. When the starch becomes dry it should be brushed away, and the application should be repeated

until the stain has disappeared. For the best results the starch should be applied before the stain is dry.

Rubber Sheets and Pillow Cases.—Soft rubber cloth, single or double faced, is most frequently used when it is necessary to protect the bed from discharges. It may be purchased by the yard. Rubber sheets should not be used unless they are really necessary. They are hot and uncomfortable, and increase the tendency to perspire. When used, a rubber sheet should be one yard wide or wide enough to reach from the lower edge of the pillows down to the patient's knees, and long enough so that it can be tucked in securely on both sides of the bed. Rubber sheets may be cleaned by laying them on a flat surface and washing on both sides with soap and water, using a small brush if necessary. After rinsing they should be wiped, and when thoroughly dry they should be rolled rather than folded, to prevent the rubber from breaking.

Rubber pillow cases are used for a patient who perspires profusely, or who has a discharge of any kind from the head or neck, and also when substances which may wet or stain the pillow are applied to the head. They should be put on next to the pillow, securely fastened with tapes, snap hooks or buttons, and covered with the regular pillow slip.

Rubber sheets and pillow cases are not durable. They should be used carefully, and frequently examined for holes or worn places by holding them up to the light. Even a pinhole near the center may render a rubber sheet or pillow case as useless as a sieve.

Sheets.—For the bed to be used by the sick, it is especially important that sheets of sufficient size be provided. These, when well tucked under the mat-

dress, will be more nearly secure and thus will allow fewer wrinkles. A third sheet is usually used on a bed for the sick. This is called the draw sheet. It is in itself a protection to the bed. When a rubber sheet or a pad is necessary, the cotton draw sheet, securely tucked in, holds it in place thus keeping it smooth



FIG. 11.—Showing the draw sheet in place with the ends well tucked under.

and free from wrinkles. An ordinary sheet folded crosswise or lengthwise, according to the width of the bed, answers every purpose. It must be long enough to tuck well under the mattress on both sides. New and expensive sheets should not be used for this purpose, since draw sheets are more likely than other sheets to become stained. Draw sheets should be

wide enough to extend about four inches beyond the rubber sheet at the top and bottom.

Covering.—Covers should be light weight, warm and washable. For the use of the sick, blankets are therefore much to be preferred to comforters and quilts. Patients are frequently too warmly covered by day. Too much warmth is enervating; it causes the patient to perspire, and makes him restless and more susceptible to drafts and changes of temperature. A heavy counterpane is uncomfortable in sickness. If a light spread is not available, a sheet makes a good substitute.

Making the Occupied Bed.—Collect the fresh linen and place it conveniently near the bed. Loosen the bedclothes from beneath the mattress, raising the mattress meanwhile with one hand to prevent jarring the bed. Remove and fold the spread. Remove the upper blanket if there are two, and drape it over a chair. Hold the remaining blanket in place with one hand, while with the other you draw the upper sheet out from under it; then fold the edges of the blanket up over the patient to keep them out of the way. The upper sheet, unless soiled, may be folded once and used again as a draw sheet. Next remove all the pillows, unless the patient prefers to keep one. Move the patient toward one side of the bed and turn him on his side so that he faces the edge nearest him. Gather the draw sheet and rubber sheet together if both are to be removed, or separately if the rubber sheet is to remain on the bed. Gather the bottom sheet throughout its entire length, and bring the three sheets, tucked flat, close to the patient's back. Pleat about half of the fresh lower sheet lengthwise and place the pleated portion as close as possible to

the soiled sheets. Tuck in the other half of the fresh sheet at the top, bottom and side, draw the rubber sheet, if it is to be replaced, back over the fresh lower sheet, arrange the fresh draw sheet in place, tuck it in at the side, and tuck its free portion close to the patient's back. The fresh side of the bed is then



FIG. 12.—1, The soiled sheets and the folds of the clean sheet placed close against the patient's back. The clean sheet is then tucked well under the mattress.

ready for the patient. Lift his feet over the gathered sheets keeping his knees flexed, and turn him on to the fresh, smooth part. Remove the soiled sheets and arrange the fresh ones in place on the side where the patient has just been lying. Be careful to keep him well covered with the blanket. After the lower

sheets are in place and firmly tucked in, spread above the blanket the fresh upper sheet, and over the sheet spread the second blanket. The patient if strong enough may hold the sheet and upper blanket in place. Otherwise the attendant will do this with one hand while drawing out the lower blanket from

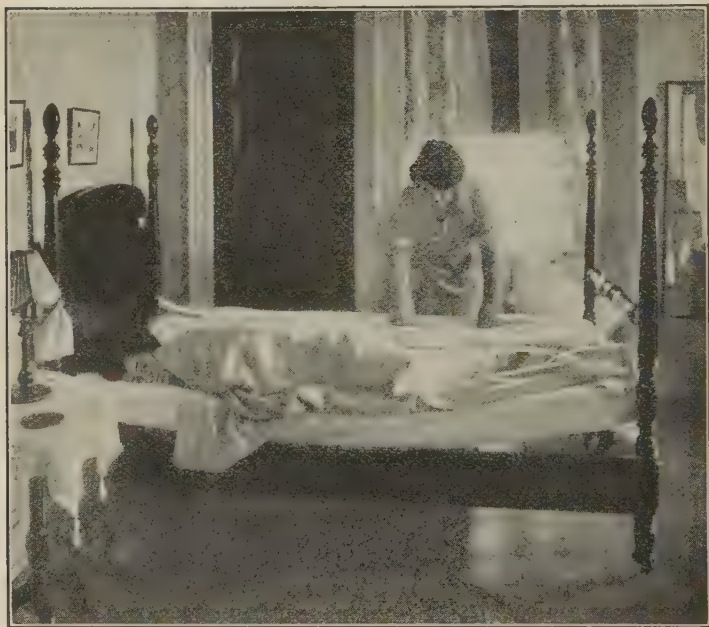


FIG. 12.—2, Patient turned on fresh side of the bed and the other half of the bed made.

beneath the sheet with the other. In this way the patient is constantly covered by a blanket. Place the blanket, just removed, above the other and finish the bed according to the directions given for an unoccupied bed, using special care, however, not to draw the covers too tightly over the patient's feet. A

fold in the bed clothes on each side will by giving room for the feet add greatly to the patient's comfort.

Turning a Patient in Bed.—A patient may be turned toward or away from you. In turning a patient toward you, place one hand over his farther shoulder and the other over his hip, and turn him toward you.



FIG. 13.—The fold in the bed clothes giving room for the feet.

Flex the knees sufficiently to give relaxation and comfort. To turn a patient from you, pass one hand as far as possible under the shoulders, and the other as far as possible under the thighs. Raising the patient slightly, draw him back toward you, turning him at the same time, and flexing the knees. Lastly place a pillow firmly against his back to support it.

Changing a Patient's Pillows.—Stand preferably on the right side of the bed and slip the left arm under the patient's shoulders, supporting his head in the hollow of the arm. Raise him slightly and remove the pillows one at a time with the right hand, drawing them outward on the far side of the bed. Place a small pillow under the head. Shake the pillows, change the cases if necessary, and place them on the far side of the bed, ready to be drawn back into position.

Lifting a Patient in Bed.—Patients tend to slip down toward the foot of the bed, and they should be raised if unable to help themselves. To raise the patient, instruct him to flex his knees and to press his feet firmly upon the bed. Place one arm under his shoulders as when changing pillows, the other arm under the thighs, and assist him upward without jerking. Two people can do the lifting much more easily and with less discomfort to the patient. Let them, standing on opposite sides of the bed, join hands under the patient's shoulders and thighs. With his cooperation at a given signal lift upward.

If the patient is entirely helpless and heavy, two or even three people are necessary. For lifting the patient in bed under such conditions follow the method given on page 60 for moving a patient from one bed to another.

Moving a Patient from One Bed to Another.—A patient may be moved with care from one bed to another, this however should be done only with the consent of the physician. On the fresh bed have the lower sheets in place but not the upper covers. Place the two beds close together side by side, and draw one mattress a little over the place where the two sides

meet. Loosen the draw sheet under the patient, roll it on both sides close to the body and draw him gently over by means of this sheet, moving his shoulders at the same time. If the beds are unequal in height, use firm pillows or folded blankets to make an inclined plane.



FIG. 14.—The first step in moving the patient from the bed to the couch.

If the beds differ greatly in height and indeed in most cases, it is better to carry the patient from one bed to the other. At least two people are needed; three are preferred. One person alone should never attempt to carry anyone heavier than a small child. The following method is suggested. First place the fresh bed or couch at right angles to the head or foot

of the occupied bed. Let two bearers, *A* and *B* stand on the side of the bed next to the couch. Let *A* place one arm well under the patient's shoulders and her other under the small of the back, while *B* places one arm under the hips and the other just below the knees. Draw the patient to the edge of the bed, instruct him to place his arms about the shoulders of *A* and to hold the body rigid, and then lift together at a given signal, keeping the weight well up on the chests of the bearers. Take the few steps necessary to lay him on the couch.

Whenever a patient must be turned, lifted, carried or moved in any way, let him know beforehand just what you intend to do so that he may not be startled, and also that he may cooperate if possible. Grasp him firmly but gently, avoid pinching the skin, and move him steadily and smoothly, avoiding jerks and false starts. Do not attempt alone more than your strength is amply sufficient to accomplish, and endeavor at all times to handle the sick with the utmost gentleness and consideration.

QUESTIONS AND EXERCISES

1. What points are essential for the practical bed in the home?
2. In selecting a bedstead and mattress for the home, outline the points you consider essential.
3. What care do springs require?
4. What care is necessary for the mattress?
5. How may feathers be transferred from one pillow tick to another?
6. Give a safe rule for the size of sheets?
7. Give methods of protecting and cleaning the type of bed covering which you consider most desirable.
8. What care is necessary for your bedroom? Plan its care for one week.
9. What are the advantages of envelope corners?

10. Show the arrangement of three short blankets to secure warmth for both feet and shoulders.
11. Show the method of protecting a blanket.
12. Demonstrate the daily airing and making of a bed.
13. Which of the beds in your home would you select for a sick person?
14. Why should the bed for a sick person be elevated?
15. What changes would you make in preparing a bed for the sick?
16. What is the use of a rubber sheet? The disadvantage? Name some substitutes.
17. What are the purposes of the draw sheet?
18. Show how a bed patient may be kept warmly covered and comfortable while his bed is being made.
19. Show how the bed covers may be arranged to give sufficient room for the feet.
20. Show how to change the pillows under a helpless patient's head.
21. Show the way in which two people may lift a patient up in a bed.
22. Arrange a bed and a couch in the most convenient way for moving the sick person from the bed to the couch and back again.
23. What are the main objects to have in mind, in making a bed occupied by a sick person?

FOR FURTHER READING

Home Care of the Sick: "When Mother Does the Nursing"—Clara D. Noyes (National Health Series).
Personal Hygiene and Home Nursing—Louisa C. Lippitt.

CHAPTER IV

CAUSES AND PREVENTION OF SICKNESS

Diseases of two kinds have long been recognized: first, those transmitted directly or indirectly from person to person, like smallpox, measles and typhoid fever; and second, diseases like heart disease and apoplexy, which are not so transmitted. These two classes are popularly called "catching" and "not catching." The former are the communicable or infectious diseases, and the latter the non-communicable or non-infectious.

COMMUNICABLE DISEASES

The invention of the microscope has revealed the existence of innumerable little plants and animals, so small that even many millions crowded together are invisible to the naked eye. These tiny living creatures are called germs or micro-organisms. Some germs live as parasites within the human body where they flourish and multiply. The common belief however that all or even most germs are harmful is quite unfounded. As a matter of fact, while not less than 1,500 different kinds of micro-organisms or germs are known, only about 75 varieties are known to produce disease.

Disease-producing germs are parasites which upon finding favorable conditions in the body, produce poisons called toxins. These poisons or toxins inter-

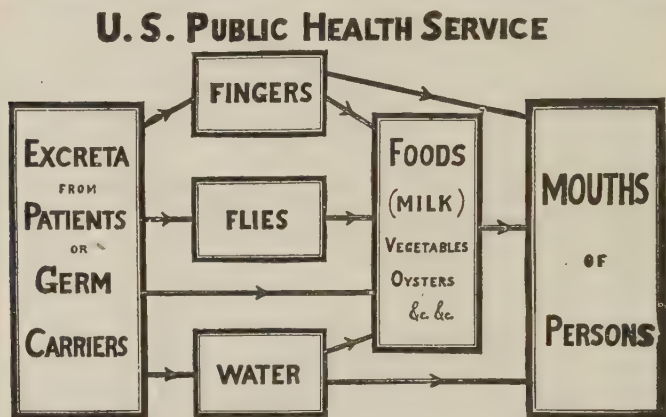
fere with the bodily functions, and thus cause what we know as communicable disease. The principal diseases for which there is a known germ cause are tuberculosis, pneumonia, diphtheria, scarlet fever, whooping cough, typhoid fever, cerebrospinal meningitis, dysentery, Asiatic cholera, plague, leprosy, tetanus (lockjaw), glanders, anthrax, Malta fever, septic sore throat, gonorrhoea, syphilis, malaria and yellow fever. These diseases are caused by specific germs only, which means a certain disease cannot develop unless its particular germs are present. The germs of typhoid for instance, can cause typhoid fever only, and not tuberculosis, or other disease.

Micro-organisms not yet identified probably cause the communicable diseases whose origin is not known with certainty. These include influenza, colds, smallpox, infantile paralysis, measles and German measles, mumps, chickenpox, typhus, dengue, rabies (hydrophobia), and Rocky Mountain spotted fever. We can hardly doubt that the intensive laboratory research in progress will reveal in the future the specific germs of these diseases also.

Transmission of Disease Germs.—Germs that produce disease are called pathogenic. Such organisms need for their development food, moisture, darkness and warmth, conditions that exist within the human body. When one or more of these factors is unfavorable, development of germs is checked. If unfavorable conditions are extreme or long continued, the organisms begin to die. It is difficult to say at exactly what moment they will die, if deprived of moisture or exposed to extremes of temperature or other unfavorable conditions, just as it would be impossible to state at exactly what moment a collection of house

plants would all be dead if water were withheld, or if the room temperature were greatly reduced.

Most pathogenic (disease producing) organisms, however, do not flourish long outside the body, and they owe their continued existence to a fairly direct transfer from person to person. They gain access to the body through mucous surfaces such as the respiratory and digestive tracts, and through breaks



GRAPHIC REPRESENTATION OF SPREAD OF TYPHOID FEVER.

FIG. 15. (L. H. Wilder.)

in the skin, such as cuts, abrasions and the bites of certain insects. They leave the body chiefly in the nasal and mouth discharges, as in coughing, sneezing and spitting, in the urine and bowel discharges, and in pus or "matter."

The problem of controlling communicable diseases, consequently, lies in preventing the bodily discharges of one person from traveling directly into the body of another. If a person is not expelling pathogenic germs, it is clear that he cannot pass diseases on to

others. But both pathogenic and harmless germs follow the same routes from person to person, so that safety as well as cleanliness lies in preventing so far as possible all exchanges of bodily discharges.

CONTROL OF COMMUNICABLE DISEASES

There are five routes by which the bodily discharges most frequently travel from one person to another. Four of these routes of infection are called public, because in most cases individual efforts are not sufficient to control them. The public routes are water, milk, food and insects. The diseases that depend for transmission upon water, milk, food and insects can be controlled only by public action, that is, by specific measures taken by a group of people in order to protect the individual. Such action constitutes *public sanitation*.

The fifth, or private route, includes all means by which fresh discharges of one person are passed to another, as when nose and mouth discharges are carried in coughing, sneezing and kissing, or when bowel and bladder discharges are carried by the hands. A large group of diseases, chiefly sputum-borne, can be controlled only by individual action, since they are transmitted by germs which follow this route. Such individual action constitutes a large part of *personal hygiene*.

These five routes in a given case differ greatly in relative importance, but the fifth, or direct route plays an immense part, although its importance in causing sickness has only lately been recognized. It cannot be too strongly emphasized that the chief agent in the spread of human diseases is man himself, and the human hand is the great carrier of disease

germs both to and from the body. If unclean hands could be kept away from the orifices of the body particularly the mouth, many diseases would soon cease to exist.

The problem of controlling infections sounds simple, depending as it does so largely upon unpolluted water, milk and food, extermination of certain insects, and cleanliness in personal behaviour. In practice the problem is not so easy. Public sanitation has performed miracles in the past, and will do much in the future. Individual behaviour, however, will continue to be influenced by many factors, social and economic as well as personal. The standards of individual behavior also, through information gained in the widespread efforts of countless agencies to conserve health, mean more intelligent cooperation and therefore greater assistance in the control of communicable disease. Necessarily individual conduct is influenced by many factors, social and economic as well as personal. Former lack of information regarding health and disease control is and can be, at least in large part, supplied. Poverty remains a serious but not a hopeless problem, for many agencies are working earnestly and intelligently to bring health and its consequent disease control within the reach of all.

Carriers.—Well persons who carry in their bodies pathogenic germs but who themselves have no symptoms of disease are called carriers. Typhoid carriers have typhoid germs in the intestinal tract, while they themselves show no symptoms of typhoid fever. Diphtheria carriers have germs of diphtheria in the throat or nose, but have themselves no symptoms of diphtheria. It has now been proved that many patients

harbor germs for weeks, months, or even years following an infection, and are dangerous distributors of disease. Also, some healthy individuals without a history of illness harbor living germs which may infect susceptible persons in the usual ways. Transmission by healthy carriers goes far to explain the occurrence of diseases among persons who have apparently not been exposed. This explanation has greatly clarified the whole problem of the spread of communicable diseases. Carriers, unfortunately, exist in large numbers, and render the ultimate control of disease exceedingly difficult. They can usually be identified by bacteriological tests. To some extent they can be supervised. Food handlers at least should be legally obliged to submit to physical examinations, and should be licensed only when proved free from communicable disease.

Diseases are also spread by persons suffering from them in a form so mild or so unusual that they pass unrecognized. These persons are known as "missed" cases. Carriers of disease and "missed" cases go freely about the community, handling food, using common drinking cups, traveling in crowded street cars, standing in crowded shops; in various ways coming into close contact with other people, coughing and sneezing, and kissing their friends no less often than normal individuals. It is consequently clear that the bodily discharges of supposedly normal persons may be hardly less a menace than those of persons known to be infected.

Defenses of the Body.—In view of all the danger from disease-producing germs it may seem surprising that the human race has not long ago succumbed to its invisible enemies. But the body has various defenses

by means of which it may prevent invasion, or successfully combat its enemies in case they do gain access.

Bodily Defenses against Micro-organisms.—The unbroken skin is usually impassable to bacteria. Virulent organisms are often found upon the skin of perfectly healthy persons, where they appear to be harmless unless an abrasion occurs which affords entrance into the deeper tissues.

The mouth of a healthy person may contain bacteria of many kinds, but the saliva has a slight disinfectant power and serves as a constant wash to the membranes. The normal gastric (stomach) juice is decidedly unfavorable to the growth of bacteria, although it does not always kill them. They often pass through the stomach and are found in large numbers in the intestines. Other bodily secretions, such as the tears and perspiration, tend to discourage bacterial growth.

Tissues of the body vary greatly in their power to resist invading germs, so that the route by which germs enter influences the severity of their effects. Typhoid bacilli when taken with food or water produce far more serious disturbances than when injected under the skin. Infections from pus germs through a small abrasion of the skin may result in a slight local disturbance, while the same amount introduced into a deeper wound might cause a fatal infection. Certain germs flourish in certain tissues only. Even tuberculosis, which attacks practically all tissues, has its favorite locations.

Immunity.—In addition to its mechanical defenses against disease, the body shows a varying degree of immunity, the power to resist infections. Immunity or resistance is the opposite of susceptibility. It is exceedingly variable, being greater or less in different people and under different conditions, but the exact ways in which it is brought about are still in many cases far from clear.

Immunity may be *acquired* in several ways. It is commonly known that one attack of certain communicable diseases renders the individual immune for a varying length of time, and sometimes for life. Among these diseases are smallpox, measles, whooping-cough, scarlet fever, infantile paralysis, typhoid fever, chicken-pox and mumps. Erysipelas and pneumonia on the other hand appear to diminish resistance and to leave a person more susceptible to later attacks.

Again, in some cases immunity may be artificially acquired by introducing certain substances into the body. This acquired immunity may be of two kinds, either *passive* or *active*. *Passive immunity* is temporary protection acquired by injecting into the body of man *sera* (antitoxins) containing the necessary resisting substance (antibodies) to combat the disease. Passive immunity is most valuable in combating the immediate attack of toxins, such as diphtheria, and tetanus (lockjaw).

Active immunity is acquired by injecting into the body substances which by their stimulating effect cause the body tissues themselves to produce their own resisting substances (antibodies) against a certain disease. This gives an immunity similar to that acquired by an attack of the disease. Examples of this include the use of toxin-antitoxin against diphtheria, vaccinations against smallpox and typhoid, and, more recently developed, the scarlet fever toxin against scarlet fever. Laboratory research goes on constantly, and doubtless many more substances will eventually be discovered that will reduce human misery and loss of life as already have vaccines and anti-toxins.

Vaccination and innoculation have saved thousands of lives. Smallpox, once more prevalent than measles, was the scourge of Europe until vaccination was introduced. During the eighteenth century it was estimated that sixty million people died of it, and at the beginning of the nineteenth century, one-fifth of all children born died of smallpox before they were ten years old. In countries where vaccination is compulsory for children, and revaccination of young adults is carefully practiced, almost complete freedom from

smallpox is obtained. Thus in Denmark, only seven cases occurred in the five years from 1919 to 1923; in the Netherlands, only three cases in the years 1921-23; in Sweden, only twenty cases in the three years 1919-21, and no case at all in 1922 and 1923. In the United States, of recent years serious epidemics of smallpox have occurred because large numbers of un-vaccinated persons exist, and adults, vaccinated in childhood, have not renewed their protection by having a *successful vaccination* of recent date.

Protection by vaccination is supposed to last on the average about seven years, but in case of exposure or presence of smallpox in a city, the safe plan is to be re-vaccinated. In New York State, for the period 1914-1924, the smallpox rate was 7.6 per 100,000 population, but in cities where vaccination is a prerequisite to school attendance, the rate was only 3.1 per 100,000 population, compared with 9.6 per 100,000 in the rest of the state where vaccination was not compulsory. In a period of forty years, 1874-1914, only two deaths from smallpox occurred in the whole German army, demonstrating how completely this disease can be controlled when vaccination is rigidly enforced.

Vaccination against typhoid fever confers immunity for from one to three years. It is used therefore chiefly under special conditions, as for the members of a family in which there is typhoid, in case of an epidemic in a given locality or for armies living under conditions likely to produce typhoid fever. Records from the United States Army show that in six years, 1909-1914, only one death occurred, while in the United States at large, over sixteen deaths per 100,000 population occurred annually.

Probably for scarlet fever and certainly for diphtheria, medical science has found a preventive, i.e. the child can be immunized or made non-susceptible to the disease. *Diphtheria* prevention by treatments of toxin-antitoxin is quite well-known now, and in many localities school children are being tested for susceptibility to the disease by the Schick test and when susceptible treated with the toxin-antitoxin to render them immune. The Schick test, named for the discoverer, consists of injecting within the skin a minute and harmless dose of diphtheria toxin which causes a localized reddening of the skin at the site of injection in those who are susceptible. (Children of preschool age, however, are not reached by this method of control.) Between the ages of three and six practically all children are susceptible to diphtheria, and as this is the age also when diphtheria is especially fatal, parents would do well to have all children given toxin-antitoxin. Toxin-antitoxin is not used as a preventive during an outbreak of diphtheria because the anti-bodies in the blood are not produced in protective quantities until about three months after the tests are completed. At such times physicians administer a protective dose of antitoxin to children who have been exposed to infection. This protection is immediate and lasts for a period of about two weeks.

Among 90,000 school children of New York City, who either gave a negative Schick test, indicating immunity, or were treated with toxin-antitoxin, there were nine cases of mild or doubtful diphtheria in a four and one-half months period. Among 90,000 children untreated there were fifty-six cases, some very severe, in the same period. The use of anti-toxin for treatment of diphtheria cases also has resulted in

a very great saving of life. Thus, in New York State in 1894, before anti-toxin was generally used, 99 out of every 100,000 population died of diphtheria, while fewer than 14 out of every 100,000 of the population died of it in 1922.

Recent investigations indicate with very considerable probability that *scarlet fever* can now be controlled by the use of the so-called Dick test (analogous to the Schick test) to determine whether or not the child is susceptible to the disease, and treatment with scarlet fever toxin to develop immunity in the child. Scarlet fever also is most serious for the child of pre-school age, and although the immunization for scarlet fever is a new thing, in the next few years it will probably be widely applied with a great saving of life and a greater saving of suffering from both the disease itself and the serious life-long after effects. If children are properly protected against diphtheria and scarlet fever in their childhood, up to the age of 10, for example, it is very unlikely that they will ever have either of these diseases.

For *measles and whooping cough* no specific method of control or prevention is known. About 90 per cent of all persons have these diseases sometime in their lives, but parents should carefully guard young children against exposure, and not forget that the younger the child the more likely is the disease to prove fatal or to have serious after effects.

In addition to the methods of increasing resistance to specific diseases there are also general factors which combine to build up some protection against infection. A well nourished body is of great assistance in warding off many infections. This makes necessary sufficient and suitable food, adequate sleep

and rest, fresh air and exercise, proper protection against cold and wet and the cultivation of a serene well ordered life. The mechanism by which the observance of these varying conditions combines to build up our immunity must receive our attention, for these conditions are of great importance in preventive medicine. The tuberculosis propaganda that has been spread broadcast with such energy and good effect has taught the value of fresh air and sunshine, rest and good food, in increasing our resistance to this infection. The contrary effect of disregarding these conditions is also a matter of common observation. Thus overwork, worry, stale air, poor food and undue exposure to wet, cold or sudden changes of temperature makes us more liable to contract certain diseases particularly those of the respiratory tract whose germs are ever present with us.

“There is, however, a wrong impression abroad that because a lowering of the general vitality favors certain diseases, such as tuberculosis, common colds, pneumonia, septic and other infections, it plays a similar rôle in all communicable diseases. Many infections, such as smallpox, measles, yellow fever, tetanus, whooping-cough, typhoid fever, cholera, plague, scarlet fever and other diseases, have no particular relation whatever to bodily vigor. These diseases often strike down the young and vigorous in the prime of life. The most robust will succumb quickly to tuberculosis if he receives a sufficient dose of the virulent micro-organisms. A good physical condition does not always temper the virulence of the disease; on the contrary, many infections run a particularly severe course in strong and healthy subjects, and, contrariwise, may be mild and benign in the feeble. Physical weakness, therefore, is not necessarily synonymous with increased susceptibility to all infections, although true for some of them. In other words, “general debility” lowers resistance in a specific, rather than in a general sense.” (Rosenau; Preventive Medicine and Hygiene, pp. 542-543.)

NON-COMMUNICABLE DISEASES

In this group is included a great variety of maladies. Of some the causes are known, while in the case of others, origin, prevention and remedy are still obscure. Here belong defects in structure of the body, both hereditary and acquired; insanity and other nervous diseases; new growths, like tumors and cancer; disturbances of bodily processes, as malnutrition, diabetes and gout; and the important class of degenerative diseases, like arteriosclerosis, in which tissues become hardened and fibrous and hence less able to perform their normal functions.

Diseases of Middle Life.—The diseases of middle life are playing a menacing part in national health. The average length of life in the United States has shown a marked increase, it is true, but the saving of life has not been uniform at all ages. According to life tables prepared by the Census Bureau based on the death rates in the years 1919 and 1920, the average duration of life for men (white) is 54.1 years and for women is 56.4 years. This represents in the past 20 years a gain in the average expectation of life of 5.9 years for men and 5.3 years for women. This gain is due chiefly to the saving of life through the reduction of infant mortality and the prevention of communicable diseases particularly those of childhood. There can be no more convincing proof of the necessity for and the value of instruction in the care of infants and young children.

Among adults the reduction of mortality has been relatively slight and it gradually diminishes at increasing ages. In fact, only in the past decade have the death rates at ages over 45 shown a decline with a resultant increase in the years of life remaining, on

the average, to persons at mature ages. For example, the 1919-1920 life table showed that men who had reached their 42nd birthday might expect on the average 27.3 more years of life, a gain of 1.0 year over that indicated by 1900-02 life tables. For women, at the same age, an average of 28.4 years remained, a gain of only seven-tenths of one year in the last twenty years.

Mortality in middle life and at mature ages is due chiefly to tuberculosis, pneumonia, cancer, and diseases of the heart, blood vessels, and kidneys, also to various infectious diseases, such as influenza, when they are epidemic. At least part of the failure to effect much saving in life among persons over 40 may be ascribed to the increasing death rates at these ages from cancer, diabetes, and diseases of the heart and kidneys. These diseases, which (except cancer) are due to the breakdown of the vital organs and which are occurring prematurely with increasing frequency, constitute at present one of our chief public health problems. Heart disease alone caused 19.2 per cent of all deaths in 1922 at 40 years of age and over. It is authoritatively stated that at least two million persons in the United States are affected with heart disease in recognizable form; that of the cases which come under systematic care, 70 to 95 per cent are due to general infection, of which 50 to 60 per cent are rheumatic infections, 15 to 20 per cent are syphilitic and 5 to 15 per cent are due to focal or acute general infections.¹ Diseases of the kidneys are closely associated with heart disease; one may be the cause of the other and either may result from acute or chronic infections. It is highly probable that if the acute and

¹ Haven Emerson on Heart Disease in *The Survey*, Nov. 1, 1924.

chronic diseases of childhood and youth could be reduced, i.e. scarlet fever, measles, tonsillitis, etc., and if syphilis could be eliminated, there would be a marked increase in the number of persons attaining a healthy old age.

A number of causes probably contributing to the occurrence of diseases of the heart, blood vessels and kidneys may be grouped under the term personal living conditions. These would include such things as excessive muscular work, mental overwork and worry, over feeding, alcoholism, excessive smoking and other unhygienic personal living conditions.

In most European countries the reduction in adult mortality began from 30 to 40 years ago and greater saving in life at middle and older ages have resulted than in the United States where only the past decade has shown a decreasing mortality at the older ages. Probably this difference is related to the fact that in the United States the health work did not keep pace with the rapid growth of the country and the industrialization which took place from 1890 to 1910. Further good results may be expected in the future from the increasing attention being paid to the health of school children and industrial employees, and the improvement in working and in living conditions.

PHYSICAL EXAMINATIONS

The importance of periodic physical examinations can not be overemphasized. Early recognition and competent treatment in the first stages is of the utmost importance in combating such diseases as cancer and heart and kidney disease. As previously stated, acute or chronic focal infections are often causes of cardiac and kidney defects, and, although these are

primarily diseases of more advanced age, preventive measures must be begun in early childhood and continued throughout life. Dental hygiene, the removal of diseased tonsils, and thorough convalescence from infectious diseases, to prevent serious heart or kidney defects, are among the important preventive measures. Cancer, though of unknown origin, is curable in its early stages, as it begins with a small, local growth which can be safely removed. When neglected in the early stage cancer ceases to be localized, spreads to other organs and becomes incurable. If sores, lumps or other skin defects do not heal, a physician should be consulted at once. Such symptoms as continued indigestion, constipation, or loss of weight may indicate a serious condition, and the advice of a competent physician should be sought.

The semi-annual dental examination should be a part of the regular annual examination. The dentist's advice and care is particularly necessary in order that old roots and snags be extracted before trouble results.

Periodic physical examinations of school children, in order to detect physical defects, have become an integral part of the work of enlightened public schools. The responsibility for such examinations of adults necessarily falls on the individual, and an organized effort is being made to have adults undergo an examination annually.

It is becoming more and more apparent that prevention of disease, both of the common communicable diseases and of the degenerative diseases, depends mostly upon man himself. The sanitarian has done much to control the spread of infections through water, food and milk, but it is estimated that 90 per cent of infection is spread from person to person.

Therefore the future control of disease is seen more and more as a problem of educating man to protect himself by proper living conditions and hygienic personal habits. Women must play an important role in this educational program for better health, for it is they who direct the children in the years when proper hygienic habits must be acquired.

TUBERCULOSIS, CANCER, AND MENTAL ILLNESS

As we have seen, early symptoms of sickness are always important; yet it seems worth while to mention particularly the early symptoms of tuberculosis, cancer, and mental disorders, because each of these diseases, though curable in many cases when taken in the early stages, is serious and often fatal if neglected. Certain facts relating to their cause and prevention should be known to everyone.

Tuberculosis.—In spite of the fact that mortality from tuberculosis has been declining for at least half a century, this disease caused the deaths of 105,700 persons in the United States in 1922. It has by no means been conquered, and we do not know exactly how much of the widespread campaign has been really effective in lessening its prevalence.

Tuberculosis occurs and kills at all ages, but its greatest mortality is in children under five years of age, adults between the ages of twenty and thirty, and adults at later ages when they are subjected to severe strain through illness from other diseases, by an unhealthy mode of living or by unfavorable conditions of work. Although it is one of the oldest diseases of man, and a great deal needs to be learned about the factors which favor its prevalence, we do know some fundamentally important facts about it. It is caused

by the bacillus tuberculosis. Practically all children living in towns and cities become infected, but apparently the infection does not have injurious results unless it attacks very young children, or unless the child receives a massive infection or is in a very susceptible condition. Whether or not adults can be re-infected is still a moot question, but the preponderance of opinion is that the disease in adults is caused by a reactivation of infections received in childhood. There is no direct evidence that the disease is inherited, but there seems to be no doubt that some people are born with a constitution more easily attacked by the disease than others.

These facts point clearly to certain definite *preventive measures*. The young child should be guarded from infection, especially from contact with tuberculous individuals and milk from cows that have not been tested and found free from tuberculosis. Approximately one out of every one thousand babies dies before its first birthday from tuberculosis of the bones, glands, lungs and other forms.

A much larger proportion are seriously handicapped, many of them dying before five years of age. The adult should avoid ill health; that is the best preventive of tuberculosis. Good food, sufficient rest and fresh air are not only important preventives but are also the most efficacious means of cure. Persons who suffer from insufficient food, exposure, bad housing, long hours and bad conditions of work are especially susceptible to tuberculosis.

Cancer.—The cause of cancer is not known. All the evidence however goes to show that it is neither communicable nor hereditary. Cancer may occur on the skin, in the stomach, or other organs. In women

it most commonly occurs in the breast or uterus (womb). In both sexes it occurs most frequently after forty years of age. No known medicine will cure cancer; salves and ointments have no effect. Radium and *x*-ray should not be relied upon if the cancer can be removed by operation. Safety consists in removing the growth entirely, and complete removal is possible only in the early stages.

Early diagnosis is consequently of the greatest possible importance, and an examination can do no harm in any case. Warts and moles on the skin may develop into cancer, and should be removed if they show signs of irritation. Loss of appetite and weight, any disturbance of the stomach or intestines, and sores that refuse to heal should lead a person to consult a physician. The same is true of any lump in the breast, and of irregular or persistent bleeding from the uterus in women over forty. The fact that pain is not present in cancer until the late stages leads many persons to neglect the trouble until it is too far advanced for operation. Time is all-important; hope depends on operation in the early stages when there is a very great probability of permanent cure.

Mental Illness.—The magnitude and seriousness of the problem of mental disease—always recognized as of major importance—is becoming more and more appreciated as our knowledge of the extent, the causes and the effects of the condition grows.

On January 1, 1923, there were 290,000 persons registered as patients in hospitals for the insane in the United States, but the hospital population does not tell the whole tale. Some of the insane are at large in the community and many more persons are incapable of living a normal life or of supporting themselves

because of other forms of mental illness—such as feeble-mindedness, epilepsy and hysteria. It is estimated that five out of every thousand of the general population are feeble-minded; and of the thousands who pass through our law courts each year to enter correctional institutions because of moral delinquency, the vast majority are mentally diseased.

The greatest hope lies in *prevention*, and this resolves itself into the control of inheritance and the control of environment. That mental diseases, or a constitutional predisposition to them, may be transmitted from parent to offspring is now very clear, and perhaps the majority of all mental diseases are due primarily to defective inheritance. Education of the public in the facts of heredity is necessary before much progress can be made in eliminating this source of weakness, but many persons constitutionally predisposed to mental disease could be saved from nervous breakdowns by proper guidance and training during the difficult habit-forming period of childhood. Parents and teachers should be on the watch for signs of unnatural traits and for faulty or unhealthy reactions in children. Some nervous condition may be pending in children who seem unusually depressed, morose, morbid, suspicious, excitable or irritable, or who show a tendency to emotional instability with restlessness and over-activity by fits and starts. The danger signals are extremely varied, but when a child shows nervous weakness of any kind the advice of an expert mental hygienist should be obtained.

Specific avoidable causes are responsible for the distressing condition of thousands of nervous and mental patients. Approximately 20 per cent of the hospitalized insanity is the result of known pre-

ventable causes. Syphilis, an infectious preventable disease, is one of the worst enemies of the human brain and nervous system. Alcoholism still causes thousands of cases of insanity, and in recent years an infectious disease known as epidemic encephalitis, or "sleeping sickness," has ruined many persons mentally as well as physically. Other infectious diseases, chronic poisoning from drugs, childbirth and some injuries, all exact a toll in mental sickness that might be reduced by proper preventive measures. It follows that any measure promotive of public hygiene or public health is helpful in the prevention of nervous and mental diseases.

Mental breakdowns are frequently caused by bad mental habits:

"The average person little realizes the danger of brooding over slights, injuries, disappointments or misfortunes, or of an unnatural attitude toward his fellowmen, shown by unusual sensitiveness or marked suspicion. Yet all these unwholesome and painful trains of thought may, if persisted in and unrelieved by healthy interests and activities, tend towards insanity. Wholesome work, relieved by periods of rest and simple pleasures and an interest in the affairs of others, are important preventives of unwholesome ways of thinking. We should train ourselves not to brood but to honestly face personal difficulties." ("Why Should Anyone Go Insane?" by Folks and Ellwood.)

The prevention of mental disease on a large scale consequently depends upon so educating the public in the facts of heredity that the child of the future may have a better heritage; upon fighting alcohol and communicable diseases, especially syphilis; and upon all measures that promote the health and happiness of the people. Specific cases may be prevented by the early recognition and careful training and treatment during childhood of those who are pre-

disposed to nervous breakdowns. Individual prevention depends further upon good personal hygiene, the avoidance of bad mental habits, and upon a program of living and working that will not over-tax the nervous strength.

QUESTIONS AND EXERCISES

1. What is a communicable disease? Name several. A non-communicable disease? Name three.
2. What conditions assist the growth of germs?
3. How do disease germs enter and leave the body?
4. What means toward disease prevention are included under public sanitation? Under personal hygiene?
5. What is meant by the term "carrier"? What is the danger of the "carrier"?
6. What is the danger of "missed" cases of communicable disease?
7. What is meant by immunity? In what ways may immunity be acquired?
8. What is the value of the Schick test? Of toxin-antitoxin?
9. Against what communicable diseases is protection now available?
10. What relationship exists between the degenerative diseases and personal hygiene?
11. What is the purpose of the annual physical examination?
12. What preventive measures are advocated against tuberculosis?
13. What is the point of importance in dealing with any case giving evidence of cancerous growth?
14. What are some practical means of prevention of mental illness?

FOR FURTHER READING

An Autobiography—E. I. Trudeau.

A Mind That Found Itself—C. W. Beers.

Health and Disease—R. I. Lee.

Mental Health (iv. Positive Health Series).

National Health Series:

ix. Tuberculosis—Linsly R. Williams.

xvii. Taking Care of Your Heart—T. Stuart Hart.

Preventive Medicine and Hygiene—M. J. Rosenau.

Primer of Sanitation—John W. Ritchie.

Principles of Sanitary Science and the Public Health—W. T. Sedgwick.

Public Health in the United States—H. H. Moore.

Public Health—W. T. Sedgwick.

Sources and Modes of Infection—Charles B. Chapin.

CHAPTER V

INDICATIONS OF SICKNESS

By indications of sickness is meant all evidences of deviation from a normal physical condition. These may be apparent only to the person in whom they occur, or to a second person only, or to both. Such deviations, commonly called the symptoms of sickness, are always important to notice, whether or not the conditions they indicate are serious.

Importance of Observation of Symptoms.—Early symptoms of sickness are often slight; hence they easily pass unnoticed. As a burning match, which anyone could extinguish instantly, may kindle a fire beyond the power of an entire city to control, so a slight trouble, easily checked in its early stages, may, if neglected, grow into a serious or even fatal disorder.

It is important, then, to notice even slight symptoms of sickness, first, in order to determine the nature of the trouble, and second, in order to institute treatment as early as possible. It is, however, hardly less important to observe symptoms accurately during the entire course of an illness. A patient's progress can be determined only by careful comparison between present and past conditions.

The Habit of Observation.—Many symptoms can be detected only by methods requiring scientific apparatus as well as the knowledge and skill of a physician, but very pronounced symptoms are generally evident to anyone. The neighbors do not need

to be told when a person has advanced tuberculosis. Neither is an expert required to see that something ails a man with a broken leg. Furthermore, less pronounced symptoms may often be clearly seen by any observant person, even by those not specially trained. Accordingly it is important for every woman who has charge of others, sick or well, to form the habit of noticing unusual appearances of any kind. This habit is one that most people must take pains to acquire, because people generally see only the things that their own experience in life has taught them to see. An added difficulty is the fact that when illness begins it is not a trained observer, but the untrained sufferer or untrained member of his family who decides whether to send for the doctor and thus to set in motion the machinery for treatment and cure.

Meaning of Symptoms.—All the training and experience of a physician are required in order to decide what symptoms indicate, and to prescribe proper remedies. Diagnosis, or the process of determining the nature of illness from the symptoms observed, is often exceedingly difficult. It must take into consideration not one symptom only but the presence or absence of a number of symptoms. Untrained persons who attempt to make diagnoses are frequently led astray by the fact that actual causes of trouble may be situated far from the places where symptoms are felt or observed. For instance, the real cause of headache may lie in a region far removed from the head. So-called heart-burn, which is caused by disordered digestion, has nothing to do with the heart. Again, an early symptom of tuberculosis of the hip joint is pain under the knee. A mother is clearly not doing the best thing when she assumes that

any pain in a joint means rheumatism, and therefore doses her suffering child with the medicine that "helped" his rheumatic grandfather. No untrained person is equipped to make a diagnosis, and still less to prescribe medicine or treatment.

Need for Routine Method.—Symptoms, like all other forms of discomfort, tend to trouble a patient in proportion to the amount of attention that he gives them. Hence, in order to avoid calling his attention to them unnecessarily they should be observed so far as possible without his knowledge. When it is unavoidable for him to realize what is going on, observation should be made a matter of routine, so that his interest may not be especially excited. For instance, everyone who has seen the routine medical inspection of school children realizes how little attention the children themselves give to the process, apparently regarding it merely as one of the many inexplicable proceedings of grown people. On the other hand, children who know their symptoms are over-anxiously watched, soon learn to watch themselves and to exaggerate every little ache and pain.

Classification of Symptoms.—Symptoms may be divided into two classes. These are first, *objective* symptoms, or those that can be noted by an observer, like cough, pulse rate, or color of the skin; and second, the *subjective* symptoms, which are apparent only to the person affected, like pain and fatigue. The success of any woman who cares for the sick depends to a large extent upon her quickness and accuracy in noticing and reporting these symptoms and their variations. It should be remembered that pronounced symptoms are not the only ones of importance. Even slight symptoms that continue over an appreci-

able length of time may be of very great importance. A brief description of some important symptoms follows, in order to help persons without technical training to describe the symptoms as well as to observe them.

OBJECTIVE SYMPTOMS

Temperature.—Bodily heat is produced by slow burning of food materials, which goes on for the most part in actively working muscles and glands. Heat thus generated is distributed by the blood to all parts of the body, but the surface of the body is generally cooler than the interior. In health the body temperature varies only a few degrees, no matter how much the temperature of its surroundings varies. Consequently a temperature is abnormal if it is higher or lower than the usual temperature of a healthy person.

The temperature is taken by means of a clinical thermometer placed either in the mouth, the rectum, or the armpit (axilla).

To take the *mouth* temperature, first wash the thermometer, using cold water and absorbent cotton or clean soft cloth and soap. Next shake it until the mercury thread registers 96° or below. It is well before purchasing a thermometer to see whether it can be shaken down easily. Next place the thermometer in the patient's mouth, with its bulb under his tongue; he must then keep his lips closed until it is removed. Leave the thermometer in his mouth for two minutes. Then remove the thermometer, read



FIG. 16.—
Clinical
thermometer.

the temperature and record the result. Clean the thermometer at once. It should be thoroughly scrubbed with soap and cold water and a small cloth, or piece of cotton. In case of communicable disease the physician will give instructions as to the disinfection of the thermometer at the termination of illness.

The normal mouth temperature of a healthy person is about 98.6° F. This statement holds true if the person has been sitting with his mouth shut for a little while before his temperature is taken. A hot bath, breathing through the mouth, eating or drinking, and so forth may however cause marked temporary changes.

The *rectal* temperature generally varies less than the temperature in the mouth unless it is taken when the rectum contains fecal matter. The temperature should be taken by rectum in babies and young children, restless, drowsy or delirious patients, patients who cannot be trusted to keep the thermometer under the tongue, mouth breathers, and in any patients who have difficulty in keeping the mouth shut. The temperature is normally about a degree higher in the rectum than in the mouth.

In order to take a temperature by rectum, adults generally find it more convenient to lie on the side and prefer, if they are able, to insert and hold the thermometer themselves. However, the attendant should be certain that they can do so without breaking the thermometer. Rectal thermometers should be lubricated with oil or vaseline before using. They should be inserted about two inches, left in three minutes, and cleansed in the same way as the mouth thermometer. A thermometer used to take rectal temperatures should never be used in the mouth.

In taking the *temperature of a baby* place him on his back, hold him firmly with his legs elevated, and carefully insert the bulb of the thermometer, well oiled, for about one inch within the rectum. Keep the child quiet, and hold the thermometer in place three minutes. Great importance should not be attached to a slight fever of short duration. The temperature of a child is much more easily affected by slight causes than that of an adult, and rectal temperatures between 97.5° and 100.5° should ordinarily not cause anxiety unless continued.

A *temperature taken in the axilla* is less accurate than that taken by mouth or rectum. Consequently the method is less often used. The axilla should first be wiped dry. The thermometer should then be inserted and held for five minutes by pressing the arm tightly against the chest wall. The temperature in the axilla is normally about half a degree lower than in the mouth.

Variations of temperature are usually significant. The temperature varies somewhat according to the time of day. It is not unusual for the mouth temperature of persons who are entirely healthy to be as low as 97° in the early morning, or as high as 99° in the late afternoon, and probably most people's temperatures vary as much as a degree during the twenty-four hours. Even greater variations, however, that are not long continued may have little if any significance in people who feel well.

Decided variations either above or below normal are highly important symptoms. A temperature below 98° is called subnormal, and one above 99.5° is called fever. The number of degrees of fever does not necessarily bear a direct relation to the severity of an

illness. Thus, it does not follow that one person is twice as sick as another, because his temperature is twice as many degrees above normal. All symptoms, including variations in temperature, must be considered in connection with one another, and it is generally impossible to state the significance of any one symptom taken by itself.

The temperature should be taken once or twice a day as a matter of routine in almost every form of illness, and oftener when the patient's condition requires it. Also it should be taken as a matter of routine whenever there is indication of beginning sickness; especially when there is headache, pain, sore throat, coated tongue, cough or cold, chill, vomiting, diarrhea or rash. It is not a good plan to take one's own temperature oftener than necessary, or indeed anyone's; certainly not a baby's, since frequent use of the thermometer may irritate the rectum.

Pulse.—Each time the heart beats, blood is forced out from the heart into the arteries, thus causing an expansion of the arterial walls. This expansion, called the pulse, can be felt in some places where arteries lie close to the surface of the body. The character of the pulse beat and its rate, or the number of times the beat occurs each minute, give information about the heart and blood vessels. Taken together they are perhaps more important than any other one symptom.

The *pulse rate* varies much more than the temperature. It differs in different individuals and at different ages, and it often shows great temporary changes, especially during exercise or eating, or as a result of excitement, fear or other emotion. Definite statements in regard to normal pulse rates are hard to

make, because different individuals though in perfect health show marked variations. We generally say, however, that the pulse rate of a normal man at rest is about 72 a minute, and that of a normal woman is about 80 a minute. At birth the pulse is quickest. It may then be from 124 to 144. From the sixth to the twelfth month it may be from 105 to 115 a minute, and from 90 to 105 between the second and sixth years. About the time of puberty it reaches the adult rate, and during old age it may be decidedly slower than the adult rate.

The *important points to be observed* in regard to the pulse are here given.

1. Rate, or number of beats per minute,
2. Force,—whether weak or strong,
3. Rhythm,—whether regular or irregular.

Much practice is necessary before the pulse rate can be counted with any degree of accuracy, and wide experience with both normal and abnormal pulses is required in order to judge its strength, rhythm, or other characteristics.

The *method of feeling* the pulse is easily understood. The pulse may be felt most conveniently on the thumb side of the front of the wrist. It should be counted while the patient is lying down, and the watch used must have a second hand. To count the pulse, one should place two or three fingers (not the thumb) on the patient's wrist, and after the pulse has been felt distinctly for a few beats, the exact time by the second hand of the watch should be noticed and the counting begun immediately. It is generally best to count for half a minute, multiply the result by two to get the rate for a whole minute, and then to repeat for another half minute. The two results

should agree within two beats, if the patient is quiet. A greater variation than two beats may mean that the pulse rate is varying, but when it is counted by inexperienced persons the apparent difference is generally the result of inaccurate counting, and it may be necessary to count two or three times more. The force of the pulse varies also in different individuals. It is however important to notice when it grows stronger or weaker in the same person. Normally, the pulse-beat is regular like the ticking of a clock. It is called irregular if a few rapid or slow beats are followed by others of a different rate. During sickness the pulse should be counted whenever the temperature is taken, or oftener. The result should be written down at once. The pulse of a sick person often shows changes both in rate and character. Such changes are generally important and should be noticed.

Respiration.—Variations in the rate and character of respiration or breathing should be noticed. The normal rate of respiration for an adult at rest is 16 to 20 each minute, but it may be much faster, especially during muscular exercise. In babies the rate is about 30 to 35 a minute, and 20 to 25 in little children. The respirations, especially of babies, can best be counted during sleep by placing the hand lightly on the chest or abdomen. Since the respiration rate is partly under a person's control, it is almost sure to alter if the patient knows it is being counted. Hence when the patient is awake it is better to keep one's fingers on his wrist, to place his hand upon his chest, and then to count the rise and fall of the chest while apparently counting the pulse. Sometimes it is possible to count the respirations merely by watching the rise and fall of the night gown or bed clothes. The

respiration is usually counted for a full minute. A watch with a second hand must be used, and the result should be recorded immediately.

In certain forms of sickness breathing may become rapid, especially if the lungs or air passages are affected. In addition to the rate anything unusual about the breathing should be noticed. It may seem labored or painful, noisy with a snoring sound, wheezing, or sighing and so on.

General Appearance.—Any unusual expression of the face should be noted. It may be drawn, pinched, anxious, excited, or dull and stupid. The face may be thin, swollen, or puffy under the eyes. The condition and appearance of the skin are significant. The skin may be dry, moist and clammy, hot or cold. Its color, and the color of the face especially, may be flushed or pale or slightly yellow or blue. A bluish tinge about the nose, tips of the fingers, or the feet should be specially noticed. Reddened or discolored areas on any part of the body may be important, and also eruptions, rashes, swellings, or sores. It should be noticed whether the abdomen is normal or whether it is distended and hard.

Strength or weakness is indicated to some extent by the way the patient moves, and by his ability to walk, stand, sit, hold up his head, feed himself, or turn in bed without assistance. The position he habitually takes is sometimes significant. In heart affections, for instance, he may be unable to lie down. In pleurisy he ordinarily lies on the affected side, and during abdominal pain he generally draws the knees up.

Special Senses.—The special senses are frequently disturbed in sickness. The eyes may be blood-shot.

The patient may be over-sensitive to light, or see spots floating before the eyes, or he may be unable to see at all. The pupils of the eyes may be unusually large or small, or one may be large while the other is small. Swelling, redness, or discharge from the eyes should be noticed. Hearing and touch and smell may be impaired, or they may be abnormally acute, and cause real suffering. Taste may be impaired, especially when the nose is affected or when the mouth is not clean. Discharge from the nose or ears should be reported. Not only discharge, but also trouble of any kind, such as pain, tenderness, or swelling, is important if situated in or near the ears.

Voice.—The voice is often much altered in sickness. It may be weak, hoarse, or whispered. Speech may be clear or thick, or the ability to speak may be entirely lost. In extreme weakness speaking is generally difficult, and may be impossible. Moaning, groaning, and other unusual sounds should be noted. A loud, sharp cry at night with or without waking, if a repeated occurrence, may be an early symptom of some diseases of children.

Tongue.—The tongue in health is red and moist. When extended it is somewhat pointed and can be held steady. In sickness it may be cracked, dry and parched, or if the patient is not properly cared for, it may be covered with white, yellow, or brown coating. In many exhausting illnesses it is flabby and trembling. In scarlet fever the tongue is often a vivid red color, and is then called strawberry tongue. The odor of the breath may be foul from decay or neglect of the teeth, from indigestion, constipation, nasal catarrh, or special diseases.

Throat.—The throat and tonsils are sometimes red and swollen as in simple sore throat. They may be covered by white patches.

Gums.—The gums may be swollen, tender, or bleeding. A collection of sticky brownish material may appear on the teeth and gums of neglected patients.

Cough.—The cough may be dry or accompanied by expectoration. It may be painful, frequent, loud or whooping and worse by day or by night. The sputum may be yellow, white, gray, rusty, blood-streaked, dark or frothy. The amount of sputum should be noticed as well as its appearance.

Appetite.—Absence of appetite should be noted, and also the amount of food actually eaten by a patient. The amount eaten is frequently not the same as the amount carried to him on a tray.

Vomiting.—The color, consistency, amount and general appearance of the vomitus should be noted. If its appearance is unusual, the vomitus should be saved for the doctor's inspection.

Excretions.—The number of bowel movements is important, and also their character. The consistency of the feces may be hard, soft or fluid. Their color may be any shade of brown, yellow or green, from black to clay color. They should be saved for the doctor to see if the appearance or odor is unusual.

Urine.—The urine in health is clear, amber colored, and slightly acid. From 30 to 50 ounces should be excreted in 24 hours. The amount varies, however, especially according to the amount of fluid taken. It is important to notice whether the urine is scanty or greatly increased in amount, dark or pale, clear or cloudy, and whether sediment is deposited after

standing. It is essential that urine should be voided in sufficient amount. The necessity for watching its quantity is frequently overlooked in the home care of the sick. Frequency of urination should also be noted. Inability to urinate, particularly when the urine has previously been scanty, is serious if continued. It should be reported to the doctor without delay. Inability to control the bladder and bowels are also symptoms to be reported.

Weight.—Loss of weight is significant in both adults and children, and failure of babies and children to gain in weight is a danger signal.

Sleep.—The number of hours a patient sleeps should be noticed and recorded as accurately as possible. The word of the patient on this subject is not sufficient evidence. Character of sleep should also be noted, whether it is quiet or restless, and whether the patient sleeps lightly or is difficult to arouse.

Mental Conditions.—It is important to watch carefully the mental condition of a patient suffering with an acute infectious disease; whether, for example, he is normal, or depressed, irritable, restless, apathetic, dull, excited, wandering, delirious or unconscious. Such symptoms, though usually transitory and due to the absorption of toxins, may indicate an extension of the infection to the brain.

It should be borne in mind that many mentally abnormal persons get along well outside of hospitals, and some even engage in useful work; but hasty judgment of mental conditions should be avoided. Insane persons who are taken care of at home should be carefully watched for symptoms of depression, ideas of unworthiness, and delusions that others are trying to harm them, because such symptoms often

lead to suicide or violent attacks upon supposed enemies. Patients exhibiting these symptoms should, as a rule, be sent to hospitals where they can be easily safeguarded.

SUBJECTIVE SYMPTOMS

Pain.—Pain is the most important subjective symptom and should never be disregarded. Bodily pain does not occur in persons who are in all regards physically and mentally well. Hence pain is a sign that something, small or great, is out of order.

“Of all symptoms pain is the one which interests patients the most. We here emphasize the truth, too little understood, that pain is an unpleasant sensation, nothing more, and is *never* imagined. Imagination may be its cause, but the pain thus produced hurts just as truly as pain produced by a real disease. Pain is only a phenomenon of consciousness; it is always real, even that felt in a dream. If the patient is too unconscious to feel it, there simply is no pain, no matter how badly the person’s body is injured.” (Emerson: Essentials of Medicine, p. 356.)

One should remember that no possible method exists to measure the intensity of pain exactly, or to describe its quality accurately. Therefore in describing pain, it is best to use the patient’s own language. Four points should especially be observed. (1) Its location is important. (2) Its character may be dull or sharp, stabbing, throbbing or continuous, slight or severe. (3) The time at which it is worse may be important. Certain diseases for instance, are characterized by more severe pain at night. (4) It should be noticed whether the pain is relieved or increased by change of position, eating or drinking, heat or cold, or the like. Pain may be felt in a part

far from the place where the trouble really lies. Thus a dislocated shoulder causes pain in the elbow.

Pain is always a danger signal, although the significance is not always so great as the sufferer thinks. The more attention a patient gives to his pain, the more severe it always becomes. Therefore his attention should not be called to it unnecessarily. A good observer, however, can get much information by noticing the patient's expression, position, motions, etc., without constantly asking him how he feels. Although many persons over-estimate pain, others persistently disregard it, either because they are unwilling to take the necessary measures to remedy it, or because they wish to appear heroic. Both courses of action are mistaken; everyone should realize the folly and danger of bearing pain if it is possible to remove the cause.

Other Subjective Symptoms.—Nausea, fatigue and malaise are other subjective symptoms. Malaise is the name given to a general feeling of physical discomfort not restricted to any one part of the body. All three are abnormal when there is not apparent or sufficient cause.

RECORDS

Accurate information in regard to all indications of sickness should be set down in orderly manner for the information of the physician. Temperature, pulse, and respiration should be at once recorded and other symptoms as noted. Plans and instructions for the daily record sheet to be kept by the home attendant, are given under the discussion of the Attendant, Chapter VIII, pages 180 to 182.

QUESTIONS AND EXERCISES

1. What is meant by the word symptom? Why are early symptoms especially important?
2. Describe the different methods of taking temperature.
3. What is the normal mouth temperature?
4. What symptoms would lead you to take a person's temperature?
5. How may a thermometer be cleansed? Demonstrate.
6. Show the method of taking a mouth temperature.
7. What is the usual pulse rate of an adult? Demonstrate taking the pulse.
8. What should be noted in regard to respiration? Show how it may be counted.
9. Name other general symptoms.
10. What is the significance and importance of pain?

FOR FURTHER READING

Layman's Handbook on Medicine, A.—Richard C. Cabot.
Notes on Nursing—Florence Nightingale.
The Human Mechanism—T. Hough and W. T. Sedgwick.
Those Nerves—George L. Walton.
Why Worry?—George L. Walton.

CHAPTER VI

BABIES AND THEIR CARE

The principles of hygiene are fundamentally the same for young and old. The applications, however, differ at different ages. From the time when physical growth and development are complete until changes due to old age appear, an individual commonly has greater resistance than at other ages, and is able in consequence to endure unfavorable conditions of life with more success.

Babies, on the other hand, are exceedingly sensitive to their environment. Surroundings that are even slightly unfavorable are likely to make babies sick. In order to remain healthy, they must have exactly the right kind of food, in the right quantities and at the right times. Their sleep, exercise and clothing must be carefully regulated. They must be protected from careless handling, from nervous strain, and above all, from the many kinds of infection to which they are peculiarly susceptible. The life of a baby fortunately can be controlled almost completely. When properly regulated, it offers, therefore, an unequalled opportunity to see how hygienic principles work out in actual practice.

The Saving of Infant Lives.—A brief study of the loss of infant lives will serve to make clear this principle that hygienic practice applied to the infant and its environment will accomplish a saving of life. Out of

every 1000 babies born in 1923 in the birth registration area¹ of the United States, 77 died in the first year of life, or 1 in every 13 babies did not live to the first birthday. Although there has been a very considerable reduction in the deaths in the first year of life, many more of these deaths are preventable. Thus in a number of our American cities the infant death rate has been so reduced that fewer than 50 babies out of every 1000 die before completing the first year of life, as compared with 77 for the registration area.

Wide differences in the infant death rates are found in our various cities, the rates varying from about 40 to 140. This wide range suggests even more strongly that environmental factors have a marked influence upon the mortality of the baby and that most of our cities can reduce their infant deaths by improving the health conditions of the city.

In the past 25 years, the saving of infant life has been mostly through the control of the communicable diseases, and of the diarrheal diseases by better care and feeding of babies, especially by nursing at the breast instead of by bottle and by providing good clean milk. In the birth registration area of the United States, deaths from diarrhea and enteritis were reduced from 20 per 1000 births in 1917 to about 12 in 1923. Still further reduction from this important cause may be looked for, with increasing knowledge of the proper care of infants and older children and improvement in home and community surroundings. Unfortunately, almost no reduction has been made in the deaths which occur in the first month of life, which

¹ The birth registration area in 1923 included 30 states and the District of Columbia, a population of about 80 million or 72.2 per cent of the total population.

is by far the most hazardous period for the baby. These early deaths are mostly the result of conditions existing, or arising before, and during pregnancy and of the lack of medical supervision during this period. Future saving of infants in this critical period is believed to be possible through the care of mothers before childbirth (prenatal care) and through an improvement in obstetrical work and confinement service.

Value of Prenatal Care.—A striking example of the value of this care is found in the results from the work of prenatal clinics in Detroit, Michigan, where this service is well developed. Of 331 white births having had prenatal care at the clinics only 9 died in the first month, or at the rate of 27.2 per 1000, while in the rest of the city the rate for white births was 42.9 per 1000. The still-birth rate among whites for those cared for at the clinic was 26.5 per 1000 births compared with 48.2 per 1000 in the rest of Detroit. Among the colored population the differences were even greater, deaths under 1 month being 44 per 1000 with clinic care and 67.9 per 1000 without clinic care, and still-births were 42.2 per 1000 with clinic care and 121.5 per 1000 without clinic care. The saving in life of mothers was also an important result of this work, as in the two years 1922–1923 among 3,200 mothers cared for at the clinic only 10 died from childbirth, a rate of 3.1 per 1000 while the maternal death rate for the city was more than twice as high, 6.7 per 1000 births.

Every woman therefore who believes that she is pregnant should put herself at once under the care of a competent physician. If she follows his advice in regard to hygiene and proper regulation of her life, she may calm her fears and may justly expect that her

delivery will be a normal process, safe for herself and for her child. Thus the care of the child begins not at birth, but nearly nine months before he is born. It should begin at the earliest possible time.

The Need for Organized Effort.—The primitive mother's instinct to nourish and protect and succor her helpless child was the original form of infant care. Instinct alone, unfortunately, has never accomplished much in preserving health. The human race has now had an experience in the care of infants that extends over thousands of years. Yet today we are still, on the whole, perhaps more successful in raising domestic animals than in keeping babies alive and rearing healthy children.

We are forced to the conclusion that in this regard not only is reliance upon instinct alone foolhardy, but that reliance upon any one factor, or even upon a small group of factors, is insufficient. An ever increasing number of factors combine to assist in this conservation, and protective cooperation on the part of all is necessary for the saving of our child life.

The baby's two needs,—to be well born and to be well cared for, are supplied most directly perhaps by the intelligence, health, and right living of fathers and mothers, guided and aided by the efficiency of physicians, nurses, health officers and educators. In addition to all these however the saving of child life demands those conditions of sanitation and general health protection which can be supplied only through the organized resources of community, state, and nation.

Birth Registration.—Each baby's birth should immediately be recorded by the registrar of births, and parents should make sure that registration has been

attended to in the city or town where they live. In some states birth registration is already obligatory, but in any case it is required by the child's own interest. Its many advantages to the individual are obvious as seen in the list given below. Also complete and accurate birth registration is needed by every community in order that it may increase the efficiency of its organization for the protection of child life.

¹There is hardly a relation of life, social, legal, or economic, in which the evidence furnished by an accurate registration of births may not prove to be of the greatest value, not only to the individuals but also to the public at large. It is not only an act of civilization to register birth certificates but good business, for they are frequently used in many practical ways:

- (1) To prove the age and legitimacy of heirs;
- (2) As proof of age to determine the validity of a contract entered into by an alleged minor;
- (3) To establish age and proof of citizenship and descent in order to vote;
- (4) To establish the right of admission to the professions and to many public offices;
- (5) As evidence of legal age to marry;
- (6) To prove the claims of widows and orphans under the Widows and Orphans Pension Law;
- (7) To determine the liability of parents for the debts of a minor;
- (8) In the administration of estates, the settlement of insurance and pensions;
- (9) To prove the irresponsibility of children for crime and misdemeanor, and various other matters in the criminal code;

¹ Wisconsin State Board of Health.

(10) In the enforcement of laws relating to education and to child labor;

(11) To determine the relations of guardians and wards;

(12) As proof of citizenship in order to obtain a passport;

(13) In the claim for exemption from or the right to jury and militia service.

THE CARE OF THE BABY

The correct care of the baby is largely dependent upon the mother's intelligent understanding of his needs, and the methods of meeting them, and upon her ability to plan and hold to a suitable daily schedule for this purpose. The well baby should be seen regularly perhaps once a month during the first year by the physician under whose direction he remains. This is necessary in order that the mother may have skilled advice regarding those seemingly small modifications continually made necessary by the child's growth and development and consequently changing needs. The physician also by this plan is more easily able to correct any seemingly small ill before it grows to be dangerous. Fortunately the mothers of this time have at their command many and varied resources, government bulletins dealing with every phase of the subject, special assistance from the individual states and communities as well as visiting nurses, nutrition workers, study clubs and mothers' classes. Each of these agencies is of inestimable value but none of them can or is planned to take the place of the physician's personal advice based upon his knowledge of the individual condition and need.

Preparation and Equipment for the Care of the Baby.—It has been mentioned above that one of the prerequisites for correct care of the infant is systematic planning for meeting his needs. This planning should include those seemingly small details of daily life. For his normal growth and development some certain points of care are entirely necessary and for practically no reason should they be disregarded. However, these methods and processes should be carried on with as much ease, comfort and enjoyment for the mother, especially if she is nursing the baby, as may be arranged, and with an absence of flurry, confusion or unneeded handling of the child. The baby is an individual for whose particular needs every family should provide with accuracy and promptness. It is entirely possible nevertheless to fit the care of the baby into the schedule of family life with smoothness and increased pleasure to all concerned.

In order to achieve this desired state, the mother's time and strength must be conserved and thus definite plans simple and easy to carry out should be made to meet the needs of both the baby and the family. These can easily be changed and adapted as experience teaches what is best in each particular instance. For this purpose the following detailed plans are offered.

All the articles necessary for the baby's toilet should be kept together for the exclusive use of the baby. For this purpose a strong tray of any desired material is usually preferable and this may be easily kept clean. All jars and utensils used should have covers, should be heavy enough not to break easily, and should be easy to clean. Glass is usually used.

TOILET TRAY

Jar for boiled water—for washing mother's nipples before and after nursing.

Jar for cotton balls—to be used for above cleansing.

Jar for cotton—for cleansing baby's ears, nose, and genitals, etc—supply for one day.

Jar for nipples—jar to be boiled each day, nipples to be boiled after each using and by the use of a spoon placed in this dry jar.

Flat dish for soap—mild—castile.

Flat dish for oil (mineral)—supply for one day.

Pincushion for safety pins—cake of soap is recommended.

Bottle for boiled water—corked— $\frac{1}{2}$ pint boiled each day.

Nursing bottle—for giving water to baby—boiled each day.

Paper bag—for waste.

These articles should be arranged in a convenient order on the tray where they are at hand ready when needed.

If it has been found necessary to feed the baby a formula of prepared food, the utensils needed for this should also be kept assembled in one certain place, clean and conveniently arranged. The baby's clothes too, his bedding, and any other articles needed for his care should be kept together in one convenient and clean place.

The Nursery.—A separate room should be set aside for the exclusive use of the baby if this can in any way be arranged. Because he is more comfortable and less disturbed, a baby for whom this plan can be made will usually make better progress, be more quiet and less fretful. In any place arranged for the baby sunlight

and fresh air are necessary when he is asleep as well as when he is awake. However, the baby's eyes should be protected from the direct rays of the sun by properly adjusted shades or screens. A veil should not be worn over the face.

Likewise the baby should be protected from drafts. This may be accomplished by means of window boards and screens carefully adjusted. The heat of the room should be regulated between 65° and 70° F. in the daytime and slightly lower at night. A thermometer should be provided in order to gage the temperature accurately. Gas or oil heaters should not be used unless no other method of heating is available. When used, every precaution should be taken to see that an adequate supply of oxygen is maintained and that poisonous gases are not allowed to escape. It is also highly important that there be sufficient moisture in the air. This can usually be maintained by the use of open pans of water if no adequate method is provided in connection with the heating system.

Practically no furniture other than the baby's bed and provision for those articles necessary for the baby's care should be kept in this room. It should be simple in plan, easy to clean and easy to keep clean.

The Baby's Bed.—The baby should sleep in a crib, bassinet or basket, protected from light and drafts. In selecting a bed or crib for a baby or a small child, in order to guard against accident, care should be exercised to see that the rods are set close together and the fastenings well made and secure. Under no circumstances should a baby sleep in the bed with his mother or any other person. By sleeping alone and preferably in a separate room, the baby breathes better air and by being undisturbed is more entirely relaxed

and rested. He is thus probably enabled to build up that more stable nerve tone so greatly needed in later life. The mother also with this arrangement will secure a better rest which is highly important both for her own welfare and for her care of the child.

The mattress of the baby's bed should be firm and flat to hold the body straight and to give an even support. The mattress should be entirely covered by a rubber sheeting protection which may be held in place more easily if made with cotton sheeting or ticking in the form of a pillow slip and placed over the mattress. For the size frequently used in small cribs and baskets a pillow case of usual dimensions, slipped over the mattress and its protector, makes a firmly held lower sheet. Other sheets and light weight single woolen blankets, all of small size will be needed. The baby should not use a pillow. For summer a netting held in place by a narrow elastic in the hems should be provided for a protection against flies.

Clothing.—In planning the clothing for the baby, the point of first consideration is his comfort though we should also carefully regard economy both of the mother's time and of the family finances. Comfort necessitates that light weight, warm, soft materials shall be used. The weight of the clothing and the amount to be worn at any one time are dependent also upon the season of the year and the climate in general. Children are frequently dressed too warmly indoors in spite of the known bad effects from overheating. However they do need to be carefully protected and especially guarded against sudden changes of temperature, in other words dressed to suit the weather.

Care should be taken to remove warm clothing during the hot summer months. On hot days when

the temperature is 90 to 100° F., no clothing other than the diaper is needed, except perhaps for very young infants. A properly clothed child has warm hands and feet. He is not cold, neither is he hot nor perspiring. Garments worn next to the skin except the diaper should usually be partly of wool, lighter or heavier in weight according to the time of year.

The baby's clothing should be simply made and should hang from the shoulders with no tight bands or harsh neck or wrist finishings. Even the first set of clothing should not be made long since freedom of leg movement contributes to the baby's health and proper development. Simply made clothes also save the mother's time since they are easy to keep clean and easy to put on the baby. They necessitate less handling in dressing and also make it possible for other members of the family to learn more easily to dress and care for the baby. The first dresses and petticoats are now often made open in the back from neck to hem. These clothes may then be separated under the baby so as not to become wet or wrinkled, and when this is no longer necessary, they may be sewed up. The first clothing should be large enough not to be outgrown too quickly. Drawstrings at neck and at wrists allow of adjustment to size, and the length may be shortened as found necessary. Number 2, infant size, of shirts and bands will usually be more practical. For fastenings, small flat buttons or tapes should be used.

The first *bands* worn by the baby are straight unhemmed flannel about six inches wide and twenty-seven inches long. These are worn to hold the cord dressing in place and for warmth. They should be pinned on one side or tied with tapes snugly but not

tightly enough to restrict either the abdomen or the chest walls. When the cord has separated and the navel is healed and in good condition, the straight band is no longer necessary. Usually in two or three weeks after the baby's birth therefore it may be replaced by a loosely fitting knitted band with shoulder straps worn only for warmth.

Diapers should be soft and absorbent. It may be necessary to wash new diapers several times before using in order to prevent irritation. Care should be taken not to pin them too tightly. The square method of pinning on the diaper has come into common use both because it allows greater freedom of movement and because it causes less irritation. A size eighteen inches square is perhaps more comfortable, more convenient in washing and more economical. Two may be used when the baby is older. The diaper should be changed during the day whenever wet or soiled and at night when the baby is awake. Much work can be saved if small squares of loosely woven absorbent cloth are placed inside the diaper to receive discharges. These squares may be burned or even if washed are a saving of time and labor. Waterproof material when used to cover the diaper is almost sure, by holding in the moisture, to irritate the baby's sensitive skin. For this reason rubber protection should be seldom used and after each use should be washed.

The care of the diapers is most important. Soiled diapers should be rinsed clean at once in a suitable receptacle and placed in a covered pail of borax solution. Two tablespoons of borax may be used to a gallon of water. The wet diapers also should be placed in this pail. They should always be washed

before they are again used. At some convenient time each day then, the diapers may be well washed with a mild white soap, boiled, *thoroughly rinsed* in two or three waters and dried preferably in the sun.

Proper laundering of all the baby's clothing is most necessary. The flannels such as petticoats, shirts, bands, and stockings should be carefully washed in lukewarm water and a mild white soap. The principle, in order to avoid shrinking and thickening of woollens, is to protect them from extremes of temperature in laundering. After cleansing they should be thoroughly rinsed and dried slowly, never in the sunshine nor near a heater. Flannels are shrunk, by being washed in cold or hot water and by too rapid drying. Starch or bluing should not be used for any of the baby's clothing.

Below is given a minimum list of the *baby's clothing*. If it is not desired to do the baby's laundry every day, a larger number of the various garments may be secured.

INFANTS LAYETTE

- 3 Dozen Diapers—hemmed
- 3 Straight Bands—unhemmed
- 3 Knit Bands—with shoulder straps
- 3 Shirts
- 3 Petticoats—Gertrude style
- 3 Dresses—Plain Slips
- 3 Nightgowns
- 3 Pairs Stockings
- 2 One-yard Squares—or Light-weight Blankets
- 3 Quilted Pads— $\frac{1}{2}$ yard square—for protection.

The Baby's Bath.—Until the cord has separated and the navel has healed, a daily sponge bath is given to the baby. Usually after the first two weeks however a tub bath may be given. This is needed daily

both for cleansing and for stimulation. It should be given not less than one hour after feeding.

Complete *preparations for the bath* should first be made.

The temperature of the room should be from 70–72°, measured by a thermometer placed in the part of the room where the bath is to take place. In order to avoid chilling or tiring the baby the bath should be given quickly, without confusion or interruption, and with as little handling of the baby as possible. Success can be achieved by using even a moderate amount of foresight.

The bath may be given either on the mother's lap or on a table. The point to be considered is the comfort and convenience of the one who is doing the bathing. The Maternity Center Association of New York City states that "The bath given on the mother's lap enables the mother to sit while bathing her baby, and is less tiring for her and less exposing for the baby. If the mother is called away, she will instinctively pick up the baby if he is on her lap, whereas she might leave him if he were on the table with a chance of a fall for the baby." After thoroughly washing her own hands, everything to be used should be collected and placed within easy reach, clean clothing arranged in the order to be needed, with petticoat inside dress, soft towels, wash cloth, bath blanket, pure white soap, mineral oil, absorbent cotton, paper bag to receive waste, newspaper for soiled clothing and covered pail for wet diapers.

The bath tub should be filled with water last of all, and its temperature tested by means of a bath thermometer. The temperature of the water should be from 98° to 100°. After the baby is three months old slightly

cooler water should be splashed over his chest, back, neck and arms just before he is removed from the tub, and as he grows older the temperature of his cool splash can be reduced. Children who become accustomed to cool water in this way take kindly to their cold showers later.



FIG. 17.—Place the baby in the tub with its head and shoulders well supported.

The *method of giving the bath* should be carefully planned. Before the baby is undressed, the nostrils, ears, and eyes should be cleansed. The face is then washed with clear water, dried carefully and the baby undressed. The buttocks should if necessary be cleansed with oil. The head should be well washed with soap. Care should be used to wash well behind

the ears but to allow no soap to enter the baby's eyes. The entire body should then be quickly soaped with the hand with particular care in the cleansing of the creases. The baby may then be placed gently in the tub, his head and shoulders supported by the mother's left hand and fore-arm, and the body well rinsed to remove all soap. Two or three minutes is sufficient time in the tub, after which he should be removed and wrapped in a soft bath blanket or towel. He should be dried gently but thoroughly by patting with soft, warm towels rather than by rubbing. Folds of the skin should be dried with special care. A small amount of oil may be placed in the creases. The genitals should also be cleansed with oil and the baby quickly and quietly dressed with as little turning as possible. If the slips are not open down the back, draw them on over the feet instead of over the head. A baby should be both dressed and undressed in this manner.

Both mother and baby should enjoy the baby's bath. When carefully planned it is not unduly tiring but truly a most pleasant process. After the baby is dressed, he may be placed in a safe place while his bed is quickly made. He should then be nursed and put to sleep. After the exercise and refreshing effect of the bath, this nap should be long and restful.

Special Care.—Particular attention should be given to the proper care of the eyes, mouth, nose and genital organs.

Secretion accumulating in the corners of a baby's *eyes* should be removed by wiping from the nose outward with a piece of absorbent cotton dipped in boiled water. The eye should be wiped gently. A different piece of cotton should be used for each eye, and a piece that has been used should not be put back into the

water. Further than this, eyes in a normal condition do not need cleansing.

Every person who handles a baby or a baby's belongings should be very sure that her hands are clean. She should be doubly sure before she touches his eyes, since a baby's eyes are peculiarly susceptible to infection from any source. A large number of all totally blind persons in the United States became blind by infection of the eyes at birth. Blindness of the newborn can be prevented in practically all cases if the doctor uses a preparation of silver in the baby's eyes immediately after birth. This treatment is effective and entirely safe. It is required by law in some states, and in every instance should be used as a matter of routine.

If at any time the eyelids look red or swollen, or if matter appears between the lids, the physician should be summoned at once. Total blindness may result if treatment is delayed even a few hours.

The *mouth* may be rinsed after feeding by giving the baby a teaspoonful of boiled water. Until the teeth come it does not require other cleansing, and attempts to clean it may injure the delicate membranes that line it. Indeed, except in an emergency, fingers should not be inserted into a baby's mouth. The teeth as soon as they appear should be cleaned regularly.

The *nostrils* need no cleaning other than removal of mucus that can easily be reached with a piece of cotton. A piece of twisted cotton which may afterwards be thrown away may be moistened with mineral oil or vaseline and then used to wipe out the nostrils.

The *genital organs* of girl babies should be gently washed at bath time each day, using absorbent cotton and tepid water or oil. A downward stroke should be

used with a fresh piece of cotton for each stroke. Cleanliness is ordinarily all that is necessary. Vaseline or oil should be applied if the genitals are slightly reddened. Any discharge or abnormal appearance should be reported to the doctor. In the case of boy babies the foreskin should be gently drawn back each day. After the parts have been gently washed with absorbent cotton and water or oil, it should always be again drawn forward. No force should be employed in retracting the foreskin. The physician should be consulted if it cannot be retracted easily.

Normal Excretions.—A new-born baby should have one or two bowel movements during the first twenty-four hours; the first bowel movements are sticky and almost black in color. After the baby begins to nurse, three to four movements a day are not unusual, and throughout infancy and childhood as well as adult life there should be one or two evacuations of the bowels daily. The character of the stools is more important than the number. While the baby is taking milk only, the movements should be soft, yellow in color, and nearly odorless. Change in frequency of the movements, or appearance of undigested food or curds of milk in the stool, should be carefully noted and if continued, reported to a physician. They may be the first signs of serious digestive trouble.

The urine of an infant should be odorless and colorless. It should be voided at least once during the first twenty-four hours, and much more frequently after the baby begins to nurse. Marked diminution in the amount of urine should be reported to a doctor.

Fresh Air and Sunshine.—All that has been said about the importance of fresh air for adults applies with

even greater force to infants and children. During his first month especially a baby is susceptible to drafts. Nevertheless, the room should be well ventilated and its temperature kept between 68° and 70° F. during the day, and at about 65° F. at night. Even in cold weather the room should be well aired two or three times a day. The baby should be removed to another room while the windows are open. After the baby is three or four months old, the windows may be left open at night provided the outside temperature does not fall below freezing. A healthy baby two or three weeks old may be taken out-of-doors for a short time in mild weather. When he is three months old he may be taken out-of-doors, even in winter, on bright sunny days and may gradually be accustomed to spending a longer time on a sunny protected porch. A sun parlor or a glassed-in sleeping porch is an ideal home for the baby in winter time, and a screened porch is of great assistance in keeping him comfortable in summer. The baby's sleep will usually be longer, less disturbed and more restful if it can be arranged for him to take at least his naps out of doors. The sun's rays are an absolute necessity for the proper growth and development of the baby. It has been found that sunshine has a most beneficial influence in assisting growth and aiding digestion and most important of all in the prevention and cure of rickets. Sunshine is available to every baby, and provision should be made for every baby to have its benefits. The time spent out-of-doors should be gradually increased until the baby stays out the greater part of the day. He should not however be exposed to storms, wind, flying dust, dampness, extremes of temperature or insects. As stated before the eyes should not be covered by veils,

but they should be shielded from the direct rays of the sun at all times.

Exercise.—Exercise is essential to the development of the body, but during the first few weeks warmth and quiet are so important that a baby should not be disturbed except for necessary care. His position however should be changed occasionally. Turning from one side to the other is restful to the baby just as it is to the grown person. Also if he lies on the same side constantly, the soft bones of the head may become misshapen from pressure. As the baby grows older he needs more exercise, and he may be given an opportunity for it by removing his outer clothing and placing him on a bed in a warm room for a short time each day. Unnecessary handling is not good for a baby at any age.

After he becomes more active, he may play on a mattress or thick blanket placed on the floor. The blanket should be covered with a washable pad or rubber cloth and clean sheet, and the whole should be surrounded by a fence made of close set pickets at least two feet high. In such an enclosure a baby may safely be left to play if protected from drafts and cold. Elevated pens that can be folded when not in use are more convenient but more expensive than the home-made arrangement. As soon as a child begins to run about he takes ample exercise, and he may even need to be guarded from too great fatigue, especially toward bedtime. Whenever possible, it should be arranged for the baby's play pen to be placed out of doors in the open air and sunshine.

Sleep.—During his first few months a normal baby sleeps about nine-tenths of the time and should be left undisturbed except for necessary care. The baby

requires a large proportion of sleep in order to make his proper growth and development both physical and mental. The amount of sleep required daily is approximately as follows:

First six months.....	20 hours
Second six months.....	18 hours
One to two years.....	16 hours
Two to four years.....	14 hours

Throughout the first year a nap in the middle of the forenoon and another in the afternoon are desirable. If it is thought that the daytime naps interfere with sound sleep at night, the schedule for sleep should be so arranged that the naps will come during the earlier part of the day and the child will be awake during the latter part of the afternoon. By this plan the child will usually be ready for a night's sleep immediately after the six o'clock feeding. The chief requirement in this regard is that the mother should plan the schedule and should then by the aid of the clock adhere strictly to it. If wakened regularly, every day at exactly the same time and likewise put to sleep with the same regularity, the baby will soon conform to the desired schedule. During the second year one nap during the day is often sufficient if the child is doing well, but the habit of taking a daily nap at some time should be continued to the age of six years, or even later if possible.

The baby or small child should be put to bed after the six o'clock feeding. Nothing should interrupt this scheduled bedtime. Walking with the baby or rocking him to sleep is undesirable and unnecessary.

About ten o'clock, the mother's bedtime, he should be again changed and fed. He should then be made comfortable in his crib, and if well and properly trained will usually sleep till morning. He may perhaps need to be changed, turned or given a drink of warm boiled water during the night.

As stated above, the baby should be prepared for bed before the six o'clock feeding. A partial bath at this time is often beneficial. A complete change of clothing should be provided of a weight suitable to the weather. A sleeping bag is the best provision for keeping the child well covered and should be provided in addition to the necessary blankets. Especial care should be taken to see that the feet are kept warm but that the child is not too hot.

Some mothers, in an attempt to soothe the child, allow thumb sucking or the use of "pacifiers." This is most objectionable, since it often causes deformity of mouth and jaw and crooked teeth. When a child first shows a tendency toward thumb sucking, the thumb should be removed from the mouth and a large rubber ring or similar toy placed in the hand in order to distract his attention. For the slightly older child it is often thought desirable to allow some beloved plaything, such as a doll, to be tucked in beside him.

FEEDING THE BABY

Diet.—A baby in order to thrive, must have suitable food, given at regular intervals. The mother's milk is adapted in a number of ways to the needs of the infant, and for this reason, particularly in the first few months, no other food can be as satisfactory as the milk of the healthy mother.

¹“The first year of life is the year of greatest growth and development. The baby must adapt himself to entirely new conditions. All his organs must learn to function. The way a baby is fed during this period either helps him to live and to become strong and healthy, or makes his growth and development much more difficult. Breast feeding helps him more than any other one thing.

“Breast feeding provides the substances exactly adapted to produce normal growth and development, besides being the cheapest and most convenient way to nourish a baby. There is no food ‘just as good’ as mother’s milk. Mother’s milk prevents certain diseases and protects the baby from others.

“The death rate of infants who are breast fed for the first months of life is much lower² than among babies who are artificially fed during this period. If every mother realized how perilous the first months after birth are to her infant, and how great a protection breast feeding is, few babies would be artificially fed and, as a result, the number of infant deaths would be greatly lessened.

“Practically every mother, with proper instruction as to the care of her own health, can nurse her baby and thus provide him the food exactly adapted to his needs.”

Special conditions may make it impossible or unwise for a mother to nurse her baby. The physician is however the only one competent to make so important a decision as this. Neighbors, relatives or

¹“Infant Care” Bureau Pub. No. 8 (Revised) U. S. Dept. of Labor Childrens’ Bureau, 1924.

² Infant death rate is practically three times as high in artificially as in breast fed babies.

others should never be permitted to assume such responsibility.

Any artificial feeding must, if its use becomes necessary, be adapted with judgment and care to the needs of the individual child. For this reason it should not only be originally prescribed by the physician, but each successive change should be made on his continued advice. Patent foods also should be used only under his direction. All milk used for the baby should be fresh, clean, pure and of good quality. Cow's milk to be used for making the baby's feedings should be secured from a tuberculin tested herd. If for any reason this is impossible, the milk should be pasteurized or boiled in the home according to directions given on page 335. In milk properly pasteurized any disease germs are destroyed. Such pasteurization is therefore a great safeguard to the lives of infants.

Intervals of Feeding.—Little milk is secreted during the first two days after the birth of a child—usually the supply of milk is established in from three days to a week. The baby should, nevertheless, be put to the breast as soon as he has had his first bath, and the mother is made comfortable. After about the first twelve or twentyfour hours it is important that the normal baby be allowed to nurse at regular intervals such as the physician directs. Always before and after nursing the mother's nipples should be washed in water that has been boiled.

The baby's feedings follow a regular schedule prescribed by the physician. Three-hour or four-hour intervals are usually directed for the normal child.

During the period when seven feedings are given in 24 hours the following hours will be found convenient: 6 a.m., 9 a.m., 12 a.m., 3 p.m., 6 p.m., 10 p.m.,

and 2 a.m. This schedule of hours may easily be moved forward or backward an hour if that suits the home program better and is more convenient for the mother. The 2 a.m. feeding is the one omitted when the number of feedings is reduced from seven to six. Food should be given on exact schedule time. The baby if asleep should be waked for any meal except the one due at 2 a.m.

It is now considered advisable to give cod liver oil in proper amount to all infants after one month of age. This is a preventive of rickets and its use will be directed by the physician.

SUMMARY ¹ OF FEEDING FOR A WELL BREAST-FED BABY
Feeding the first six months

	Three-hour feeding interval	Four-hour feeding interval
Early morning nursing.....	6.00 a.m.	6.00 a.m.
Fruit juice (after 3 months)—1 tea- spoonful to 1 ounce of the juice di- luted in 1 to 3 ounces of boiled water	8.30 a.m.	9.30 a.m.
Mid-morning nursing.....	9.00 a.m.	10.00 a.m.
Mid-day nursing.....	12.00 m.	2.00 p.m.
Water boiled and cooled, offer 1 to 3 ounces.....		
Mid-afternoon nursing.....	3.00 p.m.	None
Water boiled and cooled, offer 1 to 3 ounces.....		
Bed-time nursing.....	6.00 p.m.	6.00 p.m.
Night nursing.....	* 10.00 p.m.	*10.00 p.m.

¹ "Infant Care" Bureau Pub. No. 8 (Revised) U. S. Dept. of Labor, Children's Bureau, 1924.

* Or later. During the early weeks of life a second night nursing between 10 p.m. and 6 a.m. may be needed, but as soon as possible the baby should sleep unbrokenly after one night feeding.

SUMMARY OF FEEDING FOR A WELL BREAST-FED BABY.—(*Continued*)

Feeding six months to one year

	Four-hour interval
Sixth month:	
Nursing.....	6.00 a.m.
Fruit juice, 1 to 2 ounces, diluted with 1 to 4 ounces of boiled water.....	9.30 a.m.
Well-cooked cereal, 1 to 2 rounded tablespoonfuls, followed by nursing.....	10.00 a.m.
Nursing.....	2.00 p.m.
Water, 1 to 6 ounces, boiled and cooled.....	5.00 p.m.
Half slice zwieback or crisp toast, followed by the nursing.....	6.00 p.m.
Nursing.....	10.00 p.m.
Seventh month:	
By the seventh month, strained vegetable soup, 1 to 6 ounces, may be given, followed by nursing.....	2.00 p.m.
Ninth month:	
By the ninth month, 1 to 3 teaspoonfuls of vegetable pulp may be added to the strained soup.....	2.00 p.m.

Note.—One bottle feeding may be substituted in place of one nursing.

Water.—Pure boiled water should be given regularly to a baby, beginning soon after birth. Water is necessary before the mother's milk is established as well as afterwards, to aid in elimination and to regulate the body temperature. It may be given with a bottle, a spoon or a little later with a cup and is necessary in larger amount in hot weather. The mother should never place the nipple in her mouth in order to test it. Because the baby seldom receives enough water when taking it from a spoon, he should be taught to take it from the bottle. It is desirable however that the child should not remain dependent too long upon a bottle. He should gradually learn to drink from a cup before the period of weaning begins.

Nursing Bottles and Nipples.—*Nursing bottles* should be of heavy glass, cylindrical in shape, without angles or corners to make cleaning difficult. The number of bottles provided should be two or three more than the number of feedings given in 24 hours.

Short rubber nipples which slip over the neck of the bottles should be selected. They should be of such a shape that they can easily be turned inside out; a nipple turner costs little, and is well worth the price. The opening in the nipple should be only large enough to allow the milk to flow drop by drop. The nipples should be discarded as they become soft, or as the opening becomes so large as to allow the milk to run too fast.

As soon as the baby has finished his meal the bottle should be removed from his mouth, rinsed immediately in clear cold water and left standing filled with hot water until a convenient time for washing and boiling all the bottles to be used during the next 24 hours.

Wash the bottles in hot soap suds using a bottle brush. Rinse well in clear hot water and place upside down in an agate or other suitable kettle. Cover with cold water, bring to a boil and boil vigorously for five minutes. A clean cloth should be placed in the bottom of the kettle to prevent the bottles from breaking. After the bottles have been removed from the boiling water, they should be stoppered at once, either with rubber stoppers or plugs of sterile cotton. Large bottles may be covered with squares of waxed paper held in place by elastic bands. The stoppers, if used, should be boiled with the bottles. Sterile cotton may be purchased by the package.

Sufficient time should be allowed for the bottles to cool thoroughly between the time when they are boiled and the time when they are refilled.

Rubber nipples require particular care. As soon as used they should be thoroughly washed inside and out with cold water and a brush. Together with a spoon they may be put into a granite cup and boiled for three minutes. The water may then be turned off and by means of the sterile spoon, these sterile nipples may be placed in a flat covered jar which, with its lid is boiled once a day. A nipple may be removed from this jar with the fingers without contaminating either the jar or its other contents. Care should also be exercised to touch nothing but the rim of the nipple when removing it or placing it upon the bottle. Used nipples should be promptly cleansed, boiled and placed in the jar after each feeding. It need hardly be said that a nipple should always be boiled before it is again used.

Method of Feeding.—The baby's feeding time should be a period of rest and relaxation to the mother. The child too should be in a comfortable position, well supported. It is important in nursing that he shall be able to breathe freely. Whether the baby is breast fed or bottle fed, during the feeding time he should not be allowed either to play or to sleep. Ordinarily the child will take its food in from ten to twenty minutes, though individuals vary widely.

For bottle feeding the milk should be warmed to body temperature by setting the bottle in warm water just before the feeding time. It should be carefully tested by allowing a drop or two to flow on the wrist. If the right temperature, it will feel neither hot nor cold. In feeding, the bottle should be held in such a

way that the nipple is kept full of milk and the baby thus prevented from taking in a great deal of air.

After feeding, a child may be held over the mother's shoulder for a few minutes. Gentle patting on the back will usually help to bring up any gas in the stomach. It is important then that the baby be placed in his bed, and without any rocking or disturbance be allowed to go quietly to sleep.

It may be well to add here some suggestions in regard to the heating of a night feeding. The bottle of milk should be kept cold until the time of use. If hot water is not available from the faucet, water may be kept hot in a thermos bottle and used at feeding time to heat the bottle of prepared milk.

Weaning.—Ordinarily, a baby should be fed from the breast until he is seven months old, either exclusively, or with the exception after the second month of one bottle-feeding in twenty-four hours. This exception will do the baby no harm and may be a great relief to his mother. Partial breast-feeding should continue if possible through the ninth month, but every baby should be entirely weaned by the time he is one year old. It may be necessary, if either the baby or the mother is not thriving, to change the food before the ninth month. It is usually desirable however not to make the change in hot weather. As to this point however, the physician will make the decision. Because of the change to a new food and the particular care thus required, the physician's advice and supervision is particularly necessary at the time of weaning.

If, according to the most general present practice, the baby has already become accustomed to some other foods, weaning will be less difficult. His previous

training in the use of a bottle and of a cup is also of great value at this time. The transfer from breast-feeding to bottle-feeding should be gradual. If the baby has already been used to one artificial feeding each day, two may now be given, and in a few days three, and so on until the complete change is made. This may take about two weeks, during which time the baby's gain in weight and the general condition should be carefully observed. Healthy babies it should be remembered, increase in weight constantly, and steady gain in weight is the best indication that a baby's food is suitable and his program favorable to consistent progress.

GROWTH AND DEVELOPMENT

In order that she may better understand how to provide for the changing needs of the baby, the mother should inform herself as to the generally accepted standards of growth and development of the child. Much material is available on this subject both from the individual states and from the federal government. Every mother may easily possess a table showing the increasing weight of the average child according to both age and height (length).¹ It should be remembered however that all statements in regard to growth and development are based on observations of many children. The following figures represent averages only, and healthy children may vary from them considerably without giving cause for alarm.

Average Size.—The average weight of a baby at birth is about 7 pounds, and the average length is about 20 inches. It is not unusual however for a child to weigh anywhere from 5 to 10 pounds at birth

¹ Refer to Woodbury's tables in appendix, pages 330 and 331.

and to measure from 16 to 22 inches in length. During the first week of life a baby loses slightly in weight. After the first week when the mother's milk is established a healthy baby should gain from 4 to 8 ounces a week until he is six months old. After that time the weekly gain is less. The weight at birth will usually double during the first five months, and treble during the first year. Consequently, a baby weighing 7 pounds at birth may be expected to weigh 14 pounds when five months old, and 21 pounds when a year old. Weight is one of the most important indications of a baby's condition. He should be weighed every week during the first six months, once in two weeks during the second six months, and once a month throughout the second year. Record should be kept of the weight in order that progress may be noted. The baby who loses weight or who fails to gain for so long as a month should be seen by the physician.

Muscular Development.—A baby at birth is helpless, and during the first few months he has little muscular control. During the third month he ordinarily begins to lift his head, and he can usually hold it up without support by the time he is three months old. When seven to eight months old he sits erect and begins to play with toys. From this time a baby makes rapid progress. He attempts to stand on his feet, begins to creep, and by the time he is fourteen months old he is usually able to stand alone, or even to walk a few steps. He is usually running about without difficulty when fifteen or sixteen months old.

Babies should never be urged to walk or to bear their weight on their feet. Some of the baby "walkers" commonly used do more harm than good by unduly tiring the child. When the body is sufficiently strong,

the normal baby will usually learn to walk without artificial assistance. If healthy, babies are generally eager to go about unaided, and like to investigate their surroundings without assistance.

If walking is unusually delayed, a physician should be consulted.

Development of Special Senses.—A new-born baby is unable to distinguish objects, but the eyes are sensitive to light and need careful protection. Hearing, although undeveloped at birth, soon becomes acute. Consequently the child should stay in a quiet room. When six or eight weeks old he notices objects, and at three months he welcomes his mother when he is hungry. A month or two later he begins to distinguish between familiar and unfamiliar faces, and to show approval or disapproval.

Development of Speech.—A baby six or seven months old begins consciously to utter sounds, and usually can say a few disconnected words by the time he is a year old. The average child however does not begin to form sentences of more than two or three words until he is about two years old.

Development of Teeth.—The so-called milk teeth are twenty in number. They are later followed by the thirty-two permanent teeth. The two lower front teeth (central incisors) generally appear when a child is from five to nine months old, and in from one to three months later the four upper front teeth (upper incisors) appear. All the first or milk teeth should have come through by the time a child is two and a half years old, but wide variations occur both in the time and order of appearance and should occasion no uneasiness if the child seems well. Unusual conditions of any sort should be referred to the physi-

cian, for it is a great mistake to attribute all illness at this time to teething.

The first of the permanent teeth appear when a child is about six years old and are called the six-year molars. They are the four teeth sixth on each side from the front, upper and lower. Especial care should be taken of these teeth since their loss throws out of line the entire dental arch and thus not only deforms the jaw and face but also renders proper mastication of food more difficult. Mothers sometimes mistake the first permanent molars for temporary teeth, a mistake that frequently leads to neglect and even extraction of these highly important teeth.

HABIT TRAINING OF BABIES

¹“The solidity of the family unit, the cornerstone of our national life, depends upon the social reactions, the mental balance and the physical well-being of our young men and women. The foundations for these three as far as environment is concerned, begin to take shape from the first moment that the lusty cry of the new born is heard. Each year sees added new developments but if the first building stones are out of alignment or are made of poor stuff, who can guarantee that the structure will stand the stress and strain of modern complex civilization?

“We must look well to these two years of infancy. Primarily we may think that mere physical growth is the outstanding feature of this period but equally important is the organization of a poised emotional and intellectual make-up.”

¹ Schoeder, Louis C., M.D. Foreword, “Babies—Their Feeding and Care,” Child Health Library, Vol. 11.

The new-born baby begins at once to build up habits. The determination as to whether these shall be good or bad habits lies largely with the mother and the father and the other members of the home circle which makes up the baby's environment. A well conducted home routine during the first years works definitely toward mental stability in later life. It may also perhaps be a means at least in part toward overcoming some hereditary tendency to nervous instability. At least we know that that child which is carried through a healthy, happy babyhood under a carefully regulated system in peaceful surroundings has the best foundation we can give for mental poise and equilibrium in later life. A life so regulated is not an impossible ideal, but its attainment does necessitate beginning at once, planning carefully, and steadfastly working in accordance with the established routine.

Crying.—The healthy baby who is comfortable and *well trained* ordinarily does not cry a great deal. However, during his first few months crying is a child's only means of expression, and he quickly learns to make effective use of his limited powers. The baby who cries when he should be sleeping is probably uncomfortable in some way. The mother should promptly and calmly learn the cause of the disturbance. Is the baby wet? Is he too warm, perhaps perspiring? Are his feet cold and uncomfortable? Is a pin sticking him? Is his clothing comfortable, smooth, not bunched up under him, not too tight in any place? Are the muscles tired from his lying in one position, and is turning him over all that is required? Is he thirsty; his mouth dry? Is there plenty of fresh air? Is the room too light or too noisy? Is there a direct draft

perhaps on the baby's head? A sheet or a screen may easily be placed to correct this. Has the baby been played with, tossed about, trotted and held until he is too fretful and tired from over-stimulation to be able to slide off to sleep? Has his day's schedule been regular and peaceful or has it been broken and confused by thoughtlessness or by fond though perhaps unwise relatives? Surely the remedy for each of these conditions is self-evident. Some are capable of immediate adjustment. Others, having more general and perhaps more remote causes, are dependent for correction upon the forethought, judgment, and control of the parents.

Many mothers will soon learn to differentiate between crying caused by pain, by temper or by nervous overstimulation. This is helpful, for then the cause can be more quickly removed. After the various causes of discomfort have been ruled out or corrected, if it seems that the cry is the expression of a desire to be taken up or to be held, the parents should guard against their own self-indulgence in responding to this. If the baby is not indulged, he may cry from temper. The cry of temper is loud and violent, accompanied by vigorous kicking or by holding the body rigid. Proper training of the baby when temper is shown may prevent many months of discomfort, and spare him the formation of a bad habit. All other possible causes for crying should be eliminated. If the child continues to cry when he is warm and dry and comfortable, "It should simply be allowed to cry it out. This often requires an hour and in extreme cases two or three hours. A second struggle will seldom last more than ten or fifteen minutes and a third will rarely be necessary" (Holt). Gas may form

in the child's stomach during prolonged crying. It is consequently permissible to take him up after fifteen minutes, and hold him erect. He generally expels gas at once, and immediately experiences relief. As soon as he is relieved, he should go back to his crib.

A certain amount of crying necessarily is normal and to be expected. The formation of a habit of crying is harmful to the child, unnecessary, and wearing upon the parents. Its treatment lies in prevention from the very beginning, not in overfeeding or frenzied jiggling, hushing and walking. In case the habit has for any reason been developed, measures should be taken to correct it. This is necessary both for the present and the future welfare of the child. It requires judgment and firmness, and it is an essential kindness. In this connection it is well to remember also that in general the habits of the baby reflect the nervous environment, the degree of composure and of peaceful quiet and regulated stimulation which the parents place around it.

Sleep.—See page 108, 119.

Regularity of Bowel Movements.—The habit of regular daily bowel movements is of great importance to the baby's welfare. Every effort should be made to assist in the establishment of this habit at a regular time each day. Such a habit will do much to regulate the entire bodily mechanism and when once formed, it usually lasts throughout life. Under favorable conditions a baby only three months old may be trained to regularity. It should be noted at what particular time of the day the bowel movements usually occur, perhaps soon after the six o'clock or a later morning feeding. At this time then regularly each day and at the same time each day, the baby should be placed

upon a small chamber and held with his back well supported. With a little persistence, usually the child will soon learn to empty the bowels at this time. This same process may then be repeated at what seems the most favorable time in the latter part of the day; since most babies have two movements daily.

Bladder Control.—Normal children, if carefully trained in that regard are usually able to control urination during the night after about eighteen months. They may learn by some word or syllable even earlier to indicate this need during the day time. The child should be given frequent opportunity during the day, especially immediately upon waking. Before being put to bed at six p.m., he should go to the toilet. He should be taken again at the time of the ten o'clock feeding. It may be necessary to take the child up once during the night, and attention should be given to this need immediately upon his waking in the morning. Regularity, patience and persistence are necessary especially in the early formation of this habit. However, there is the added advantage that early careful training will often prevent much later trouble from bed wetting. Most essentially, bladder control adds to the comfort of both the child and the family and is an end for which earnestly to strive.

Over-stimulation.—Over-stimulation of the young baby is the direct cause of much disturbance to the child and much worry to the parents. All parts of the baby's body are growing and developing rapidly. This is true also of brain and nerve tissue. These are highly sensitive and react vigorously to all outside forces. In order that he may not become that much talked of and too frequent source of worry, the "nervous" child, the baby should be carefully shielded from

excitement. This means that for practically the first year he should live a quiet, regular life in a peaceful, happy home atmosphere. He should not be subjected to crowds, busy streets, excursions, tiring trips and broken hours. Even within the home circle the child may sometimes receive very harmful over-stimulation by too boisterous play, especially when near his bed time or when the type of play causes fright and hysteria. Surroundings and routine which reflect composure and calm judgment will do much to build in the child a foundation for the desired mental poise and equilibrium.

Plays and Toys.—Games and play should be adapted to the age of the child and sufficiently varied to exercise all portions of the body. They should not be too violent nor too prolonged. Some supervision of children's play is necessary, but they should be given as much freedom as possible and allowed to develop their own initiative.

The desire for play does not develop until a child is about six months old. At this age toys that can be washed, such as those of hard or soft rubber, should be selected. They should have no small parts which may become detached and swallowed by the baby. A baby instinctively carries everything to his mouth,—first his thumb, then playthings, and later whatever he may find, no matter how unsuitable. Relatives are nearly always tempted to give too many and too fragile toys. They merely teach a child to be destructive and constantly to expect something new. A silver spoon is a good plaything. A small pan or a string of spools holds considerable interest. Simplicity of taste and constructive imagination in play and in toys are to be fostered. Toys are the

first possessions of which a child is conscious, and through them many desirable qualities may be developed. A habit of neatness and order may be built up by providing a low shelf and a basket or box in which to keep toys and by training the child to place them there. Gentleness and a feeling of protection toward the doll or the teddy bear is desirable as is also unselfishness in sharing special treasures with playmates. Later the child may be given pets and made responsible for their care; but animals should not be subjected to unintentional cruelties from small children.

The Day's Schedule.—Much has been stated in regard to the need for regularity in the life of the child. Regularity can best be obtained by the carrying out of a well-planned schedule which shall be a guide for each hour of the baby's day. To the schedule of feeding as directed by the physician and as placed in the home routine may be added a similar schedule of the other events of the child's daily life. This entire program will include then in addition to the feedings, the regular times for the daily bath, the toilet, the morning and the afternoon nap, the daily exercise or airing and the bed time.

After nine months and throughout the second year the general schedule for bath, bed time, and naps remains much the same with decrease in the number of feedings according to the physician's direction and a slight decrease in the number of hours of sleep.

However, with whatever suggestions may be given, it still remains for the individual mother with the guidance of the physician to make that schedule suitable to the needs in her own family and of her own baby. Perhaps the most important points are

that she shall plan a schedule and still more that she shall carry it out. Both for the good of the child and for the comfort of the family such a daily program should be followed. It is not too much to say that the baby's or the child's daily life can be ordered by the clock, and that by so doing his welfare is served.

With this repeated insistence upon routine schedule and system, it might seem that it is desired that the baby become merely a small machine, a part of an automatic establishment. Plan and system are essential but with them ¹ "the baby needs a certain amount of 'mothering' each day. It needs to be cuddled and turned over at intervals and to be held up and patted gently on the back after nursing. This human touch will not interfere with its routine of sleep or feeding. The mother must learn from experience when it is desirable to handle the baby and when not."

QUESTIONS AND EXERCISES

1. What two factors are chiefly responsible for the deaths of babies under a year old? What other factors contribute? In your city or town what is the number of deaths per 1,000 births of babies under one year old?

2. Why is birth registration important to an individual? To a community? Is it required by law in your city?

3. What is the average weight of babies at birth? Describe the rate at which they should gain.

4. At what age may a normal child be expected to sit erect? To stand? To walk? To speak? When should his first teeth appear? His permanent teeth?

5. Describe normal bowel movements of a baby.

6. How should a young baby be dressed?

7. Describe a baby's bath and toilet.

8. Describe the surroundings that are suitable for a baby.

9. What is the best food for a healthy baby? Why?

¹ Bolt, Richard A., M.D. "The Baby's Health," National Health, Series. Funk & Wagnalls Co., 1924.

10. Describe in detail a good daily program for a healthy baby four months old.

11. What habits are desirable for a baby to form, and how may he be trained so that he will form them?

12. Name all the indications that would tell you when a baby was not thriving, and in each case tell what you would do about it.

FOR FURTHER READING

Baby's First Two Years, The—Richard C. Smith.

Being Well Born—M. F. Guyer.

Education in Health—E. G. Payne.

Educational Hygiene—L. W. Rapeer.

Market Milk—E. Kelley and C. E. Clement.

American Child Health Association:

i. Expectant Mother in the House of Health.

ii. The Baby in the House of Health.

National Health Series:

ii. The Baby's Health—Richard A. Bolt.

xviii. The Expectant Mother.—R. L. De Normandie.

Preventive Medicine and Hygiene—M. J. Rosenau.

Publications, Children's Bureau, U. S. Dept. of Labor, Washington, D. C. (Free on request.)

Infant Care—Mrs. Max West.

No. 4 Prenatal Care—Mrs. Max West.

No. 90—Hygiene of Maternity and Childhood, The—Outlines for Study.

Separate No. 1 from Child Care and Child Welfare, prepared in cooperation with the Federal Board for Vocational Education.

What Builds Babies?

Bulletin of Minimum Standards of Pre-natal Care—Revised.

CHAPTER VII

THE CARE OF CHILDREN

THE PRE-SCHOOL CHILD

The child at two years is entering upon a period of greatly increased activity, of crowding new experiences, of rapid development both physical and mental. He responds vigorously to all the new interests into which his stronger muscles, steadier steps and questioning mind are taking him. With the child's widening circle of activity therefore, the pre-school years from two to six constitute a time which demands careful supervision and understanding guidance. He must be protected from infection. He must be adequately nourished. He must be properly trained.

PROTECTION FROM INFECTION

Dangerous Period.—Perhaps it may be said that the communicable diseases constitute the greatest danger to the child in the years from two to six. By far the largest number of cases of communicable disease, such as measles, whooping cough, scarlet fever and diphtheria occur among children under nine years of age. Also our death records show that the mortality for these diseases in younger children is much greater than in older children. The child from two to six, having now lost practically the whole of the immunity which he may have possessed at birth from the mother, is very highly susceptible to the dangerous infections. Furthermore, should he at this early

age contract one of these diseases, the danger is greater, both in regard to the immediate results and as to the after effects. One of the first and one of the most important duties then toward the pre-school child is protecting him from infections.

Quarantine.—The safeguarding of the child against infection includes some measures of general protection and several means of specific defense. Adequate quarantine control for communicable disease is the first means of safety to all.

It is true that no parent would knowingly expose a young child to the danger of disease. However responsibility goes yet further, for the child should be definitely safeguarded from the likelihood of contact with any communicable disease, however mild the form may seem to be. Nothing is ever gained from an attack of disease; moreover, with each successive year of escape the child's power of resistance is increased and the danger is thus in some degree lessened. Therefore, in order to protect the young child in his most susceptible years, it is first necessary to institute adequate quarantine control.

Immunization.—*Vaccination against smallpox* is now widespread and of proved value in combating this disease, always dreaded, but of late years showing a seemingly increasing tendency toward malignancy. The value and need of vaccination for the prevention of smallpox are self-evident. In many communities successful vaccination is required before the child enters school. Whether or not required by law, the parent should see that his child has this protection early. Most authorities now advise that the child be vaccinated before the end of the first year, at least before the end of the second. In case the child of two years has

not had this advantage, he should be vaccinated promptly. If every person were successfully vaccinated before school age, preferably before the end of one year, again at about twelve years, and in later life at about forty years, the olden scourge and the present menace of the disfiguring disease of smallpox would be ended. However, the duration of the immunity conferred by vaccination is variable—one to seven years, differing in individuals. For this reason, re-vaccination should always be resorted to in time of epidemics.

The Schick Test has shown that practically all children of pre-school age are highly susceptible to diphtheria. This fact indicates the need then for particular protection against this dread disease. Such protection is now available and of proved safety and value. Small injections of *diphtheria toxin—antitoxin*, a serum mixture, stimulate the body to build up an active power of resistance. The resistance thus gained will usually protect against diphtheria for years, probably for life. However, six months or more after the giving of the preventive toxin—antitoxin mixture, the child should be given the Schick test in order to determine the degree of resistance which he has been able to build up. The systematic use of present proved means for the prevention and control of diphtheria would practically eliminate this disease also.

Scarlet fever, with its toll of dangerous after effects, has ever been greatly feared. As stated also on p. 72, it now seems probable that the child may soon be protected by the use of a *scarlet fever toxin* which will develop immunity. Because of the comparatively short duration of the immunity thus conferred, the use of scarlet fever toxin now has its greatest value in case of epidemic or of known exposure.

Whooping cough is one of the most powerful killers of children. No absolutely sure preventive effect has been obtained from the use of *whooping cough vaccination*, though according to recent investigations, "in many instances fewer cases of infection are observed among the vaccinated than among the unvaccinated. Also the general impression . . . is that the attack is much milder than when the vaccination is not used. It was observed that vaccination is, as a rule, most effective when given about a week before the disease breaks out."¹

For the *avoidance of the common cold*, the chief reliance is upon prevention of contacts, exclusively individual use of personal articles, personal cleanliness, and the consistent holding of the child to his best physical condition. Colds are the cause of an exceptionally large number of the smaller ills as well as the forerunner, and a cause, of many of the larger ills of childhood. They are a frequent cause of ear trouble and are also a danger to the lungs, kidneys and heart. Because of the many evil results, every means should be employed to prevent them. Parental control, tactfully but painstakingly exercised, can protect the young child from the infection among other members of the household, among friends or in public groups.

Habits.—The child's understanding and interested cooperation should be built up in regard to the daily practice of those habits which will serve to help protect him and others. He may have his own small handkerchiefs, wash cloths, cup and other personal possessions. These he should recognize as for his own

¹ Whooping Cough: Its Bacteriology, Diagnosis, Prevention and Treatment, Thorvald Madsen, Boston, Medical and Surgical Journal, January 8, 1925.

exclusive use. He should learn to use them properly as nearly as possible. Habits of personal cleanliness and pleasure in cleanliness should be taught early during this period. The child should learn to wash his hands before meals and after the toilet. Gradually the many habits of individual cleanliness should become an accepted and a pleasurable part of his daily routine, each his own responsibility as soon as his physical and mental advancement will allow.

ADEQUATE NUTRITION

The period from two to six years is a time of most rapid growth and development. This is the time of exceptional opportunity for supplementing the child's inherited tendencies. By favorable conditions and surroundings therefore, in these early years, he may be enabled to make the most of the opportunity to build a sure foundation for growth. Such conditions include the proper nutrition of the child's body, the prevention and correction of any tendency toward bodily defect and the healthy development of a normally active cooperative mind.

Measure of Nutrition.—From a well conducted babyhood, the child should reach his second birthday with a sturdy body and regulated habits as to diet, rest, and elimination. From this time forward he will usually gain in weight according to the following schedule:

¹ AGE	AVERAGE YEARLY GAIN
2-3 yrs.....	5 pounds
3-4 yrs.....	4 pounds
4-5 yrs.....	4 pounds
5-6 yrs.....	4 pounds

¹ Denzer, Bernard S. M.D., "The Neglected Age, the Child from Two to Six." Child Health Library, Vol. III, Robert K. Haas, 1924.

During this time the growth in height of the average child will probably be about three inches each year. It is now possible to secure tables showing the average weight of children, boys or girls, in relation to height and age. These are useful to parents for determining the weight which the individual child should approximate. (See Woodbury's Tables, Appendix, pages 330 and 331.)

Tables and standards give a means of judging the state of health and nutrition of the average child. Individual variations in rather wide limits may still be normal, but every such case should be carefully examined for the possible existence of some injurious causative factor.

Physical Defects.—Correct food and food habits, important as they are, will not alone give assurance of a properly nourished body if some defect in structure or function is working constantly to counteract this. Proper nutrition will frequently prevent many defects. On the other hand, if defects do develop they tend to work against nutrition. For this reason the practice of the thorough yearly examination by the physician is becoming more general. This careful examination will detect beginning faults and will be able to point the way toward their correction before they have the opportunity seriously to affect nutrition and growth. During this time the child may develop the habit of mouth breathing, due to the presence of superfluous adenoid tissue. This can be easily remedied and should receive prompt attention before it has time to affect the facial contour, extend infection to the middle ear cavity or dull mental ability.

It is during these early years that especial effort should be made to correct such noticeable defects

as cross eyes or even slight squint. Such conditions have a well defined tendency to weaken vision and for this reason should be corrected by glasses or by whatever measures are found necessary. The younger the child at the time of this correction, the less likely is he to suffer a permanent loss of vision.

PROPER TRAINING

Individual and Parental Cooperation—As an aid in protecting from ever-present infection and in assisting in the carrying out of a planned program for growth and development, it is again stated that the first necessity is the interested pleased cooperation of the child himself. Interest in the fundamental health habits may best be secured through an appeal to the instincts which rule his life. Imitation largely rules the actions of the younger child. For this reason the example of father and mother and the general home atmosphere of cooperation and system, wield a powerful influence at this especially plastic age. What the parents do, the child will do. The attitude of the parents in this regard is reflected in the attitude of the child, not so much perhaps because of hereditary tendencies as because of the constant force of imitation. Habits of daily hygiene, the pleasant reactions to everyday demands for adjustment, as lived in an accepted and matter of course manner by the parents, will influence the young child early and unconsciously to develop an attitude of cooperation, pleased interest, sincere desire, understanding and obedience that is absolutely essential to the formation of the desired habits.

Repetition Necessary to Fix Health Habits.—Repetition plays a great part in fixing these habits in a

regular daily routine. Here again the accepted routine of the household carried forward day after day without exception and as a simple accepted fact, is the best and surest foundation for establishing the child's habits of living. Washing the hands before every meal, and each time after the toilet, always covering a sneeze, and the other similar desirable health habits soon become automatic and a part of life when carefully built up and unfailingly observed for a length of time. Repetition of all these habits may perhaps more readily be secured through following a regular daily program suited to the individual and to the home.

Food Habits.—Proper food and correct food habits are necessary for the growing child. The usual daily food supply should, among other things, contain the following essentials so prepared as to meet the age requirement of the child.

1. Fruits
2. Vegetables (particularly the green leafy vegetables)
3. Whole grain cereals
4. Milk (1 pint to 1 quart)
5. Egg (yolk to smaller children)

His food should be given at regular times. As the child becomes more skilled in feeding himself, habits of eating slowly and of chewing well should be established.

Mental Habits.—The formation of correct mental habits is as essential to the child's general health as is the building up of proper habits of physical routine. Habits of cheerfulness, self-reliance and self-control are most easily cultivated in the pre-school age. Such habits are of assistance in the carrying out of

the present health regime. They will enable the child to make, with little disturbance, the mental adjustments constantly necessary in an expanding life. Unselfishness and a desire to be helpful also should be cultivated, for the child well trained in these various desirable traits will be enabled to live more smoothly a normal healthy life. He will fit into the world without undue strain, physical or mental.

Health Habits and Sickness.—The habits of the well child will be either a hindrance or an aid to his recovery in time of sickness. The well child should be taught to open his mouth and allow the doctor or nurse to look at his throat. He should also learn to gargle and to take prescribed medicine. If in health, the young child is taught these few simple but often important practices and can develop a spirit of trust, cooperation and obedience, much will be gained. All reference and all experience should be so regulated as to teach the young child to look upon the physician as a friend whose desires are reasonable and consequently to be carried out.

THE SCHOOL CHILD

A program of health for the school child is required to meet the needs of a rapidly growing body subjected to more or less strain of social adjustment. It is desirable that provision be made for protection against disease, for correction of any hampering physical defects and for adequate nutrition of this active growing body. This is the time for establishing more firmly those habits of personal hygiene necessary for protection against disease, for health and well being. It is also particularly necessary in this period of growth

and development that correct use of the bodily mechanism become a fixed habit, that growth be aided and reserve strength be built up by sufficient sleep, and that the desire for activity be given free expression in play and exercise.

Protection against Disease.—The child of six years entering upon his school life changes his whole environment. This new experience will bring him into contact with many more individuals of his own age. He is still well within the age group which is highly susceptible to the communicable diseases. It is presumed however that by vaccination he has been protected from smallpox and from diphtheria. In such case his health has been safeguarded to a considerable degree.

However, there are diseases against which no such adequate protection may as yet be obtained. The ever present cold is easily spread from one child to another. Also, what is believed at first to be the so-called common cold may constitute the initial symptoms and the most highly communicable stage of a communicable disease. This brings us to a very evident need in the regulation of the activities of the school child, the need for what may be called a self quarantine on the part of parents. By self quarantine we may understand the parents' voluntary assumption of the responsibility for immediate separation of the child in the home, and further, their keeping from school any child who shows ordinary cold symptoms of fever and nasal discharge. Such a course is without doubt of great advantage to the child who, if promptly put to bed and properly cared for, will usually make a more rapid recovery from a cold and also in general show greater powers of resistance to other communi-

cable diseases. Thus *voluntary home isolation* safeguards the health of the individual child and likewise protects other children in the school. By this prompt control of the disease, it has been found possible greatly to reduce the number of days' absence from the school, which constitutes an added advantage.

Correction of Physical Defects—A condition of adequate bodily nutrition is of great importance in this period of rapid growth. However, the most perfect program in other regards, as a rule, cannot maintain a well nourished body in the presence of the counteracting influences of physical defects. For his own best progress, physical and mental, the child should by all means have entered his school life entirely free from defects. When the child has entered his school years in as nearly as possible perfect physical condition, it is a much easier matter by supervision to keep him up to a good level of general health. However, if by any mischance he has not received this needed attention before his school years, it is most important that correction of any existing defect shall now be promptly made. Because of the rapid growth and development of this period, defects become a most serious cause of retardation and often of permanent enfeebling of health, if not of physical deformity.

Physical defects are faults in the structure of the body; adenoid growths, imperfect eyes, abnormally curved spines, and defective teeth are examples. Most physical defects can be cured in childhood by treatment or by slight operations. Treatment is much more simple and more effective if initiated early in the development of the defect before its dangerous results have become too general. If untreated, defects

frequently lead to sickness or to serious impairment of the body, and if neglected until adult life, their injurious consequences are generally beyond remedy, even when the defects themselves can be repaired.

Some indications of common physical defects are given below. These should be generally known. If a child exhibits one or more of the symptoms mentioned, he ought to be given a complete physical examination by a competent physician, and treatment, if needed, should begin without delay. The idea that children will outgrow these defects without treatment is erroneous. Better however than waiting until symptoms appear is the present practice of giving every child a physical examination at stated intervals, an advantage secured in those public schools where effective health work is carried on.

Eyestrain.—Upon entering school life with its daily demand upon the eyes, symptoms of imperfection and consequent eye strain frequently first become noticeable. Eyestrain often comes from imperfections in the shape of the eye, which imperfections can almost always be corrected by glasses. It is especially important to learn whether the child is near-sighted, and in order to ascertain this, slight symptoms should be recognized. When a child is suffering from eyestrain, the eyes themselves may show indications of trouble. They may be blood-shot. The lids may itch or be crusted or inflamed, or styes may appear. In other cases the symptoms of eyestrain have no apparent connection with the eyes. Such symptoms are headache, nausea, vomiting, indigestion, fatigue, irritability, poor scholarship and nervous exhaustion. If a child shows any of these symptoms, or if he rubs his eyes, frowns, squints,

wrinkles his forehead, sits bent over his book, or develops round shoulders, there is sufficient reason for having the eyes examined by a specialist qualified to diagnose the condition and to prescribe the proper treatment.

Enlarged or Diseased Tonsils and Adenoids.—The tonsils are masses of spongy tissue situated at the back of the mouth, on either side of the opening into the throat. If enlarged they may seriously interfere with breathing, and if diseased they frequently harbor the germs causing many acute infections. They are thus often the seat of the infections resulting in rheumatism, St. Vitus's Dance and most of the heart disease originating in early life. Therefore frequent sore throats, colds or a general condition of poor nourishment, pale face and lips, flabby flesh, finicky appetite, or any other indication of trouble at this vulnerable point should call for a physician's examination. He will advise as to the treatment necessary to correct any defect discovered, and thus to safeguard the child's health and insure his normal growth and development.

Adenoids are situated at the back of the nose, and like the tonsils are composed of spongy tissue. Adenoids sometimes become so enlarged that they interfere with the passage of air through the nose, thus predisposing to catarrh, colds and other respiratory diseases, to high palate with irregular teeth, to inflammation of the middle ear leading to deafness, to diminished mental activity and to general poor health.

If a child breathes through his mouth, if he snores at night, keeps his mouth open and has a dull, apathetic expression, or if he has frequent colds and

attacks of sore throat, his nose and throat should be examined, and if advised his tonsils and adenoids should be removed.

Proper care and early correction of developing defects of nose and throat, both by the lessening of the opportunity for a seat of local infection and by the assistance in building up the child's general nutrition, will moreover do much to lower the high rate of colds and respiratory disorders among school children. According to observations made by the U. S. Public Health Service on the incidence of sickness among approximately five thousand white school children during the years 1921 to 1924, the common cold is the most frequent cause of illness among school children. Respiratory disorders made up 46 per cent of all these cases of sickness. It should be self-evident then that proper care and early treatment of the nose and throat is essential both to present health and to the future welfare of the child.

Defective Hearing.—Permanent deafness among children in the great majority of cases comes from trouble in the throat or nose. Hence the most effective measure to prevent deafness is to make sure that every child's nose, throat and mouth are in a normal condition. Sensitive or timid children try to hide infirmities of any kind, but deaf children seem peculiarly unable to explain their difficulties. "No one," says Cornell, "has ever recorded that a small child complained of inability to hear." A child's ears should be examined if he breathes through his mouth, if he stoops habitually, if he is persistently inattentive, or if he is vague or stupid in carrying out directions. A child who appears normal at times and inattentive or stupid

at other times should also be examined, since he may be deaf in one ear.

Temporary deafness may come from accumulated wax in the ear. The wax should be removed by a doctor. Inexpert attempts are likely to cause serious injury to the ear drum. Intermittent deafness may be caused by enlarged tonsils and adenoids. Children thus affected are not infrequently punished for seeming disobedience. Such children are also especially liable to street accidents.

Defective Teeth.—The care of the teeth has been considered on page 11.

Nutrition.—As during the first two years and in the period from two to six, so likewise in the school age it is of great importance that the child's body be properly nourished. For the accomplishment of this end, correct food and food habits are required. It must be remembered however, that it is also necessary to establish other health habits as well in order to safeguard the child's nutrition.

Some special consideration should be given to the diet of the school child. Sufficient proper food taken in the right way is highly important to the rapidly growing body. In addition to foods usually given, a variety of fruits and vegetables, especially the green leafy vegetables, the whole grain cereals, milk and eggs should be a part of the daily diet. It is particularly necessary that the child's daily menu shall not be confined to only a few desired kinds of food, but that he shall receive the balanced ration containing a sufficient variety of the essentials mentioned above.

A substantial breakfast is necessary, particularly if the child is compelled to take lunch away from home. However well planned may be the nourishment pro-

vided in the home, it is important that the school lunch shall be adequate and that it shall include milk and at least one hot food. The school child also should form correct habits of eating. Eating slowly at regular times under pleasing conditions can easily become a habit instead of an ideal.

Elimination.—The physical activity of the school child is an aid to proper elimination. It encourages full deep breathing which should however be through the nose. It assists, especially with the aid of proper foods, in a natural emptying of the bowels at a regular time daily. Other means toward normal elimination are the drinking of sufficient water and frequent bathing, preferably daily bathing.

Cleanliness.—It is desirable that the school child develop fixed habits of personal cleanliness, particularly as a means of protection to himself and to others. The daily bath has been mentioned especially as a means of securing elimination through the skin. Washing the hands before meals and always after the toilet should be emphasized. Brushing the teeth should be a regular habit. The use of the individual towel and the insistence upon exclusiveness in other personal articles as well should by this time be established. Also the careful use of the handkerchief should be habitual.

Posture.—In childhood the bones are soft and yield with comparative ease to continued strains. Hence they often become deformed as shown by bad positions assumed in sitting, standing, walking or in using the body in other ways. The postures assumed by a child should be closely observed in order that means may be instituted as indicated for fixing the habit of correct use of bodily framework and muscles.

The well nourished child of approximately standard weight for height and age ordinarily has correct use of his body. Firm muscle tone, well placed fat padding and reserve store of energy which eliminates excessive fatigue are characteristics of the well



FIG. 18.—(a) Incorrect posture (weak or fatigue posture). The neck and trunk form a zig zag line. (b) Correct posture (strong, healthy, beautiful and efficient). The neck and trunk form a straight, vertical line. (c) Exaggerated posture (rigid, ugly and harmful). This posture can be held only for a short time and with great effort. (Courtesy of American Posture League, Inc.)

nourished child. These same distinctive features work actively and positively to hold the various parts of the body in correct poised relationship.

Therefore the first consideration in any program planned to assist in correct postural development is the maintenance of the approximate standard weight, and the building of firm muscle tone and a high general vitality. This is of great importance. Defects of eyesight and of hearing should be corrected since they lead to muscle strain and postural defect. Unobstructed breathing passages and normal nose and throat are necessary for the habits of deep breathing and the consequent feeling of exhilaration essential to and accompanying good posture. There are also outside influences which may be so regulated as to assist rather than to hinder correct poise. Illumination for any work should be sufficient and should be properly placed. Chairs and tables fitted for the size of the child should be provided for his work both at home and in school. Practically all schools are now making definite effort to provide seats and desks of correct size for each individual child. Let it be here stated that the school is not primarily responsible usually for the faulty posture of the child. The child enters school perhaps undernourished or weighted down by physical defects. He enters school thus frequently with a direct tendency to faulty posture. This tendency may gradually become more greatly emphasized and hence more noticeable unless due attention is given to correction through some positive home and school program involving nutrition, seating, clothing, exercise and play.

Such a home program is more easily initiated in babyhood and through the early years of the pre-school period though it reaches its climax of highest interest and cooperation on the part of the child perhaps during the school years. Some of the essentials of a schedule

for fostering and maintaining adequate nutrition have already been discussed. *Seats* should be provided of such height that when the body at the hips is resting firmly against the back of the chair, the entire sole of each foot, heel as well as toe, is planted firmly on the floor. Working table or desk should be of such height that the child may rest either elbow upon it in position for writing without the shoulder being raised or lowered. By such seating the spinal column will be enabled to maintain its normal erect position without curving to either side or forward or backward. It is well in addition to encourage the child to sit as well as to stand with abdomen flattened and with a lessening of the inward spinal curve at the waistline. Provision for seating, well adjusted to the child's stature, is necessary in the home particularly for eating and for reading, for puzzle working and other types of quiet play.

Another definite home responsibility, one which has much influence upon the posture of the child is his *clothing*. The general rule that for postural freedom clothing should be light weight and hung from the shoulders is well known. It is not enough however, simply to say that clothing should be hung from the shoulders. The bulk of the weight both of hose supporters and of other clothing should be so adjusted as to be borne by the part of the shoulder near the neck. The outside point of the shoulder is much more subject to strain than is the inner part of the shoulder near the curve of the neck. No tight bands of any sort, waist bands or round garters should be used.

Properly fitting *shoes* of a correct type will assist greatly in maintaining correct posture. Sufficient

length, ample breadth for toe room, straight inner border, snug fitting instep and heels, and broad heel of medium height are desirable. Shoes possessing these characteristics can and should be obtained, and special care should be taken to see that rapid growth of the child is not attended by the wearing of too short shoes. With younger children a good plan is to draw the outline of the bare foot while the child stands on a sheet of paper. The weight is thus borne on the foot, and the necessary length and toe spread can be accurately ascertained. By cutting out this pencilled outline and placing it on the sole of the shoe, it can then be absolutely determined whether the shoe affords sufficient length and breadth. Too great emphasis cannot be placed upon the proper fitting of children's shoes. A normally developed strong foot should be the rule instead of the exception.

Too many people meekly accept as an inescapable necessity weak and deformed feet with all their attendant ills of poor posture, nerve strain, indigestion, etc., not to mention the continual discomfort and physical incapacity thus occasioned. Care as to fitting the shoes, regular use and consistent exercise of the feet will do much to eliminate this irritating trouble. The U. S. Public Health Service states¹ definitely that the development of most of the cases of foot defect could be prevented by adequate attention during childhood. Also efforts to correct a tendency to flat foot should include the correction of hampering physical defects that lower vitality and the general improvement of physical and mental health.

¹ U. S. Public Health Reports, March 27, 1925, Foot Defectiveness in School Children.

Sleep.—In order that growth and development may be aided in this period of activity, and that reserve strength may be built up, a sufficient and indeed a large relative proportion of sleep is necessary. The child entering school requires at least 11 hours of sleep, and even up to high school age he will need 10 hours. Sleep should be in a well ventilated room, or better still on a sleeping porch. Undernourished children and those who are making a poor growth should follow a schedule which will give added time for sleep and rest. It is an especially beneficial practice for such a child and indeed for any growing child to have the advantage of a daily rest period of about an hour during which he may sleep or rest lying down. A sufficient amount of sleep and rest will add greatly in maintaining nutrition and encouraging growth.

Play and Exercise.—The growing child develops through free play and exercise preferably in the open air and sunshine. As large a proportion of time daily as may be arranged should be given over to out-of-door recreation, which may of course include simple home duties and errands. In fact some productive exercise daily is highly desirable. The child should be encouraged to play with other children and simple means of amusement should be provided especially for out-of-door play. These may include balls, swings, turning poles and similar equipment which is especially helpful in developing the muscles of the back and chest. Such development it may be stated is of great assistance also in the maintenance of correct posture.

Important as is out-of-door exercise, it should not be permitted to the point of over-exertion. The rest period is equally essential, and a well ordered alternation of rest and exercise, work or play, should be

preserved. This is especially necessary in the case of the poorly nourished or the nervous child and is beneficial also to the normal child.

Mental Hygiene.—The children of nervous parents are particularly likely to show nervous instability. An hereditary tendency in this regard need not be accepted as an irremediable condition. Such hereditary tendencies may be to a great extent overcome by thoughtful training, by quiet harmonious surroundings and by a well ordered life which includes the opportunity for imitating parents who have gained self control. In any case it is difficult to say how much of nervousness may be ascribed to inherited tendency and how much to the pernicious influence and overstimulation of home surroundings which permit constant friction and irritation. Emotional control on the part of the parents and a well ordered regular program of living will do much to develop stability, poise and control in the child. Through daily practice, steadiness and quietness may in time become a habit. It is also possible to cultivate in the child cheerfulness and sympathy. The child should be guided toward the development of desirable mental as well as physical habits. In the accomplishment of this purpose perhaps one of the greatest aids is the careful building up of an attitude of respect resulting in orderly response, a spirit of cooperation and a desire to be useful.

However should any child show indications of becoming a disciplinary or a mental problem, it is advisable to seek the advice of a physician experienced in dealing with such cases. (Many cities have established mental hygiene centers which make this service available.)

Children who seem to show tendency to undue nervous excitement or instability should be carefully observed and guided, but they should never be allowed to realize that they are the object of any unusual solicitude. They will do better if not encouraged to expect special dispensations or exceptions to be made in their favor. They should fit easily and smoothly into the normal home program and should feel that they are a normal useful part of it. Such a practice is simply a means of securing the most favorable surroundings that can be obtained. In addition the general health of the child should be maintained at the highest possible level. Any condition that lowers vitality tends to increase their troubles. Nervousness may be caused among children of good inheritance, and increased among others, by poor nutrition, lack of exercise and play out-of-doors, fatigue, loss of sleep, eyestrain, adenoid growths and the poisons of infectious diseases.

It is characteristic of many nervous children that they are too easily stimulated. They may be excitable, restless, unnaturally quick in moving, over-sensitive to pain and discomfort, easily fatigued, irritable in temper and unable to control the emotions. They frequently make involuntary motions like grimacing and winking the eyes. Children of low nervous tone however are not necessarily excitable. A nervous child may be muscularly weak, awkward in gait, listless, dull, clumsy, forgetful and inattentive. Such children often suffer from cold hands and feet and from profuse perspiration.

Much can be done for these children by removing the cause of their troubles if possible, by giving them simple and wholesome surroundings, by suiting

their occupations to their strength, by eliminating mental strain, particularly during the adolescent period, and by training them to control their minds as well as their bodies.

"In addition to the hardening of the body, the education of the child should include measures which increase the resistance of the child against pain and discomforts of various sorts. Every child, therefore, should undergo a gradual process of 'psychic hardening' and be taught to bear with equanimity the pain and discomfort to which everyone sooner or later cannot help but be exposed. What I have said about clothing, cold baths, walking in all weather and at all temperatures, play and exercise in the open air, has a bearing on this point, for a child who has formed good habits in these various directions will have learned many lessons in the steeling of his mind to bear pain and to ignore small discomforts." (Barker: "Principles of Mental Hygiene Applied to the Management of Children Predisposed to Nervousness.")

Plan of Daily Living.—A well ordered plan of daily living has been emphasized for the baby and for the pre-school child. Such a program is equally essential for the school child. Regular hours of rising, of bed time and of meals should be observed. If habits are well regulated through all these years of plasticity and development it would seem that the individual would enter adult life with some assurance of a well laid foundation for health and normal living.

QUESTIONS AND EXERCISES

1. Why is it necessary in the preschool age to stress protection from infection?
2. What are the means of protecting the child against communicable diseases?
3. What personal habits are a protection against disease?
4. How can it be determined whether or not a child is well nourished?
5. Why is early correction of physical defects important?

6. What defects are common in the preschool age?
7. How may the instinct of imitation be used in the training of the child for health?
8. List foods which should be a part of the daily diet.
9. Plan a day's menu for a normal child of 3 years—5 years.
10. What mental habits will assist the child's physical health?
11. What should be the child's attitude toward health supervision of home, school, and of physician? How can this attitude be built up?
12. Why is special attention necessary for protection of the school child against communicable disease?
13. What is meant by a physical defect? Name some of the most common defects.
14. Name some permanent injuries to the body caused by defective teeth; by diseased or enlarged tonsils and adenoids; by faulty posture.
15. Describe some common symptoms of eyestrain in children; of enlarged tonsils and adenoids; of deafness.
16. Name several possible causes of round shoulders, and explain why urging a round-shouldered child to hold himself erect is seldom enough to make him correct his posture.
17. What measures should be taken to overcome nervousness in children?
18. Describe in detail the health work carried on in the public schools of your city or town. Considering the important part played by uncorrected physical defects in causing permanent physical disability among adults, do you think in the long run it is cheaper or more expensive for a community to spend money in protecting the health of school children?
19. What care is necessary in the diet of a school child?
20. Plan suitable breakfasts for one week for a child of 8 years.
21. Plan school lunches for one week for a boy of 12.
22. What habits of cleanliness should be stressed?
23. What are the sleep requirements of normal child of 8? Of 12?

FOR FURTHER READING

Child's Book of the Teeth, A—H. W. Ferguson.

Educational Hygiene—L. W. Rapeer.

Food: Why? What? How? (American Red Cross Pamphlet No. 725.)

Graded Outlines of Hygiene—W. F. Cobb.

Health in Home and School—M. A. Bigelow and J. Broadhurst.

Health and Medical Inspection of School Children—W. S. Cornwell.

Health Training in Schools—T. Dansdill.

Hygiene of the School Child—L. M. Terman.

Market Milk—E. Kelley and C. E. Clement.

National Health Series:

VII. The Young Child's Health—Henry L. K. Shaw.

VIII. The Child in School—Thomas D. Wood.

XV. Adolescence—Maurice A. Bigelow.

Runabouts in the House of Health, The—American Child Health Association.

Nutrition Class, The—Charles H. Smith.

Posture of School Children, The—J. H. Bancroft.

Pre School Child, The—A. L. Gesell.

School Hygiene—F. B. Dressler.

School Program in Physical Education—C. W. Hetherington.

Child, The: His Nature and Needs—M. V. O'Shea.

Children's Bureau, U. S. Dept. of Labor, Washington, D. C.

Why Drink Milk?

No. 30—Child Care—The Preschool Age—Mrs. Max West.

CHAPTER VIII

THE HOME ATTENDANT AND HER DAILY ROUTINE

There are many minor ailments, chronic illnesses and long or short stages of convalescence which intelligent dependable women—or men—may attend in their own families with satisfaction to both the patient and the doctor. In many of the children's diseases, that mother whose judgment can control her sympathies would often make the best nurse. For many mothers however it is difficult to be firm in a routine performance of some duties most necessary for the welfare of the sick child.

It is impossible to lay down hard and fast rules for the home attendant, saying, "This you may attend; this requires a graduate nurse." The question can be rightly decided only by the doctor in charge who is always the one to take the responsibility. If the question of a nurse must be considered from the standpoint of expense and the patient is ill enough to require skilled care, the visiting nurse association in a city may perhaps be called upon to help. The daily call by the visiting nurse involves only a nominal expense, and there are countless numbers of sick patients who have made excellent recoveries with the care thus given, particularly when supplemented by the faithful and intelligent cooperation of a wife, mother or sister, or frequently of a husband or father.

The visiting nurse gives care to the sick patient and also advises, teaches and helps the home attendant.

THE HOME ATTENDANT

One member of the family, and one member only, should carry the responsibility for the patient in the home. Confusion and innumerable mistakes result when several well intending persons attempt to do the talking and the directing. Therefore, a certain designated one should plan for the patient as well as care for him, should see the doctor and take the doctor's orders. There will be less chance of any mistake if the physician himself or the attendant at his dictation will write out these directions.

Duties of the Attendant.—It then becomes the duty of the attendant to plan the every day care of the patient and the daily routine which will be most desirable in carrying out the doctor's orders. She will plan and make provision for any adjustments in the room and in the immediate surroundings which might give greater comfort to the patient. She will see that needed equipment is at hand. She will also safeguard her patient in all contacts with the outside world, the family and friends. Some seemingly small adjustments here are often most necessary. For instance, the thoughtful attendant will train all comers to use the ordinary speaking voice both in the patient's room and when talking outside the door. Anything undesirable for a sick person to know can be settled well out of his hearing. In speaking to him there is no possible objection to an ordinary well modulated voice. Such seemingly small but really important regulations are the safeguards which conserve the patient's nerve force and thus make it possi-

ble for him to relax and to gain strength. The efficient ordering therefore, and the carrying out of the many points in the care of the sick person and in the equipment and care of the sick room, are the definite fixed responsibilities of the attendant.

Dress of the Attendant.—The attendant should wear washable dresses with sleeves that can be rolled up, washable aprons, and shoes with rubber heels. All clothing should be comfortable. She should be neat in appearance, scrupulously clean in person, and should keep her finger nails short and smooth. Jewelry, especially rings and chains that rattle, and finery of any sort are all out of place in a sick room.

Conservation of the Strength of the Attendant.—The attendant must learn that her own sleep, her diet, and her out-of-door exercise are essential to the patient's well-being hardly less than to her own. A home nurse often considers that going without food and sleep is a proof of devotion. In a passion of self-sacrifice she may neglect herself utterly for the first few days, and as a consequence be quite useless at a later period when her services are most needed. An exhausted, sleepy nurse, trained or untrained, is wholly unfit to be trusted with medicines and doctor's orders, to note changes in the patient's condition, or to give him kindly attention. Efficiency and fatigue have never pulled together since the world began, and no one can do good work when suffering from lack of sleep and rest.

The person, then, who genuinely wishes to give her patient the best possible care will have regular meals, regular hours of sleep and regular hours of work, rest and recreation. The attendant should

have some daily outdoor exercise. Both fresh air and occasional absence from the patient are essential to her physical and mental well-being. Moreover, she will be showing her patient the greatest kindness in the long run if during her recreation time she thinks of him as little as possible. Indeed, she need not consider herself inhuman if she has a thoroughly good time.

Responsibility of the Attendant.—On the other hand, a person who is responsible for the care of a patient must realize that she and she only is ultimately responsible during the entire twenty-four hours of every day. Being responsible for a patient means that she should plan so effectively that everything necessary is done either by herself or by another competent person. It does not mean that she should be present in the sick room every minute or do everything herself. When she goes away for even half an hour, she should appoint someone else to be responsible in her place and to her when she comes back. She must consequently make very clear just what she wants done. If there is medicine, nourishment or treatment to be given, she can easily make a list, with the time for each, and ask that each item be crossed off the list as soon as the work has been done. She should remember to ask for the list when she returns.

DAILY ROUTINE IN THE SICK ROOM

Good Management in the Sick Room.—The proper care of the sick necessitates good management. Florence Nightingale has said:

“It is impossible in a book to teach a person in charge of the sick how to *manage*, as it is to teach her how to nurse. Circum-

stances must vary with each different case. But it is possible to press upon her to think for herself. Now what does happen during my absence? I am obliged to be away on Tuesday. But fresh air, or punctuality is not less important to my patient on Tuesday than it was on Monday. Or: At 10 p.m. I am never with my patient; but quiet is of no less consequence to him at 10 than it was at 5 minutes to 10. Curious as it may seem, this very obvious consideration occurs comparatively to few, or, if it does occur, it is only to cause the devoted friend or nurse to be absent fewer hours, or even fewer minutes from her patient—not to arrange so as that no minute and no hour shall be for her patient without the essentials of her nursing.” (Notes on Nursing.)

In general we may say:

1. Plan for each hour of the day.
2. Try to do the most important things first.
3. Complete one piece of work if possible before starting another.
4. Always leave the patient and his room in better condition and with a more agreeable and a happier atmosphere.

Obviously the routine of a patient's day must vary according to her condition, her preferences, and the amount of time the attendant has to give her. The temperature, pulse and respiration must be taken and all medicine, nourishment and treatment given at the exact times ordered, but the attendant should learn whether or not the doctor wishes her to wake the patient for food or treatment. Good management in the sick room depends upon foresight and planning, and therefore it is well to keep in mind the suggestions given below.

Before Breakfast Routine.—Patients often wake early and wait, weak and miserable, for the day to begin. A hot drink at this time may give relief and enable the patient to sleep again. Even though

breakfast time is near, nourishment should be given as soon as the patient wakes. She may not admit that she is hungry, but her nourishment should not be delayed until the family breakfast is ready, or still worse, finished.

Before breakfast the bedpan should be offered, the patient's face and hands should be washed,



FIG. 19.—Before breakfast toilet.

her teeth brushed, her hair tidied, the bed straightened and the room put in order. These services should require a few minutes only. The room if properly arranged at bed time needs only a little attention now if tidy work has been done during the night. Order in a sick room is as necessary in the early morning as at any other time. Vitality is lowest

in the early morning; hence baths and treatments, especially if they are fatiguing or painful, should if possible be left until after breakfast.

Morning Care.—After the patient has finished her breakfast she may rest, or if allowed, read her mail or the newspaper while the attendant prepares for the day's work. About an hour after breakfast the bath should be given, unless it is preferred in the evening. After the bath some form of light nourishment should be brought even to a patient who has regular meals. The patient will probably prefer to sit up in a chair, if this is allowed, for a time, just after the bath and toilet have been completed. However, if tired or drowsy, it may be better to wait until afternoon to sit up. A more complete airing and cleaning of the bedroom is possible when the patient can be removed into another room. Also such a change of scene usually gives pleasure to a sick person.

Sitting Up in a Chair.—The doctor will definitely state when and for how long a patient may sit up for the first time after an illness. The attendant who may be ignorant of the dangers involved, should not assume the responsibility of deciding. Select a comfortable armchair with back and sides high enough to give support to head and arms. If a rocking chair is used, put old magazines or pieces of wood under the rockers to keep the chair firm while the patient is being moved. Arrange pillows in the seat and at the back. Bring the chair close to the bedside, facing either the head or the foot of the bed, and cover it with a large blanket unfolded. While the patient is still in bed, put a warm robe over the gown and draw on stockings and slippers. Help the patient

to a sitting position on the extreme edge of the bed, with feet hanging down. Standing in front and supporting her well, let her slip down until she stands upon her feet. Let her turn, and gently lower her into the chair. See that the patient while sitting



FIG. 20.—1, Assisting the patient to her feet.

up is warmly covered, and that footstool, pillows, etc., are adjusted comfortably. Move the chair so that the outlook may be as interesting as possible, and at least a little different from the view from the bed. Most patients like to look out of the window. Children and old people enjoy it particularly. Place close at hand a small table with fresh drinking water and a hand bell.

If the patient shows signs of fatigue, she should go back to bed even before the appointed time. To help her back to bed, reverse the process of helping her out. A footstool may be needed if the bed is high, or two people to lift her if she is weak or heavy.



FIG. 20.—2, Adjusting the footstool.

Visitors.—The best time for visitors is the last of the morning or the early afternoon. A judicious visitor may do an immense amount of good, especially for a chronic patient. Indeed, she may be the only ray of light in a dark day. A chair should be provided for the visitor in order to avoid any temptation to sit or lean upon the patient's bed, since this practice is disagreeable to the patient. The sick person will

need to be as nearly comfortable as possible in order to enjoy the visitor's stay. Subjects of conversation should be pleasant, but not too stimulating or exciting. The visitor should be prepared to carry the burden of the conversation, to drop topics skillfully that seem to involve fatigue or excitement, and either to go or to stop talking if the patient seems tired. Visitors should remember to talk naturally and cheerfully on ordinary topics, and to avoid excessive sympathy and labored attempts to cheer the patient. They should also remember that few patients bear well even the mildest forms of teasing. The patient's room is not the place to discuss personal or family troubles; yet it is only too often chosen for such purposes, probably because the complainer knows that in it an audience is always to be found.

Visitors not belonging to the family should not be present in the sick room during treatment of any kind, unless their help is required; neither as a rule, should they stay during the patient's meals. A member of the family may stay with advantage if the patient tires of eating alone, but casual visitors almost invariably offend by undue urging if the patient's appetite is poor, or by facetious remarks if it is good.

Ordinarily only one visitor should be admitted at a time, since a weak patient may be tired merely by looking from one to another. If it is desirable to limit the call, the attendant should tell the visitor beforehand how long to stay, or arrange a signal for the visit to end. To announce baldly in the sick room that the patient is tired and the visitor must go, will only elicit aggrieved protests from both. In illness lasting only a day or two all visitors should

be discouraged; during colds, because they are communicable; during general fatigue, headaches, digestive upsets, and painful menstruation, because rest and quiet are highly desirable. Visitors at such times too frequently give injudicious sympathy, and may actually delay the recovery of patients who enjoy playing the rôle of interesting invalid.

The time when a trustworthy visitor is present may be the best opportunity for the attendant to rest. The patient should be told when the attendant is going, and approximately when she will return. It is a mistake to slip away while the patient sleeps. A sick person seldom fails to wake before the time scheduled and to resent desertion. Surprises of any kind, pleasant or unpleasant, are seldom good for the sick.

Evening Care.—Toward the end of the afternoon the patient is probably tired, especially if she has not slept during the day. When fever is present her headache and restlessness increase as the day goes on, but it should be remembered that uncomfortable beds and too heavy covers cause much of the restlessness attributed to fever. Rubbing the back and legs with alcohol, giving a tepid sponge bath, remaking the bed or changing her position may help to soothe her.

The evening should be kept free from excitement, and every possible effort should be made to encourage sleep. It is a mistake to think that a better night results from keeping a sleepy patient awake all the evening; sick people should sleep when they can. Just before bed time the attendant should prepare her own bed if she must sleep in the same room. Thus she will avoid making a disturbance after the patient is quiet. Place close at

hand an electric flash or small shaded lamp with safety matches for the attendant's use during the night. Lastly make the following preparations for the patient to sleep. Wash the patient's face and hands or give a sponge bath if it is desired. Brush the hair. Change the night gown. Brush crumbs from the bed. Tighten the sheets or remake the bed if necessary. Rub the back and other pressure points with alcohol. Shake the pillows. Give liquid nourishment, preferably hot for inducing sleep. Cleanse the mouth. Give the bedpan. Place an extra blanket at hand for use in case of need. See that the patient's feet are warm, the bed covers right, the room in good order and ventilated properly. The heat should be properly controlled and the light extinguished or arranged with proper shield for the night. All opportunity for subsequent noise or disturbance, as from leaking faucets, creaking door hinges or squeaking shoes, should be eliminated by whatever means are found necessary. If the patient is inclined to be wakeful a hot foot bath may help her, or sponging the entire length of the spine for fifteen minutes, using hot water and long downward quiet strokes. No conversation should be encouraged during preparations for the night. Patients in bed all day often lose the habit of sleeping at the regular time, and lie awake far into the night from a vague feeling that something further is to be done for them. Consequently last of all ask if the patient wants anything more. If not, say good-night, go out and stay out, at least until she has had a chance to go to sleep. The patient realizing that it is time to begin a night's rest, and being given the opportunity, will be more likely promptly to go to sleep.

Comfort during the Night.—Toward morning the patient may grow weaker. More bed covers will probably be needed, and they may often be added without waking her. Night at the best is a dreary time for the sick. Pain and weariness and discouragement are less bearable in the darkness. Nervous fears and morbid fancies defy control.

Never is kind and thoughtful care more needed or more appreciated than it is by those who lie awake and watch for the morning. Some of the various soothing methods before mentioned may be repeated quietly without hurry or noise. Choose such as have seemed to give greatest comfort before. Refill the hot water bottle and be sure the feet are warm. Rub the back with long strokes the full length of the spine. Cold compresses applied for a few minutes over forehead and eyes may help if the patient seems feverish. Give a drink of hot milk. When thus again made comfortable, with quiet and darkened room, the patient will often be so soothed as to sleep until breakfast time.

Special Problems and Responsibilities of the Attendant.—It is sometimes exceedingly difficult to care for members of one's own family or to be cared for by them. Too much or too little is frequently expected by one person or the other, and where great affection is involved not only is the strain increased on both sides, but often harm results from too great unselfishness on either side or both. Sometimes the reverse is true, and then one should remember that normal behavior may be impossible for the sick. During weakness and pain, irritability and unreasonableness are as characteristic as other symptoms, and it is as much out of place to demand a

normal mental state from a sick person as it might be to demand a normal temperature. For a cheerful, reasonable, and unselfish patient—and there are surprisingly many—one should be devoutly thankful, but patience and pity should be given no less to those whose tortured nerves cause suffering to others as well as to themselves.

Every woman who cares for the sick should remember that she is the patient's chief if not his only link with the normal world, and that his plight is pitiful indeed if she is complaining or irritable or unwilling. Anyone who cares for the sick should remember also that she is necessarily in a most intimate relation with the patient, and that such enforced intimacy calls for extra consideration on her part, and for the most scrupulous respect for confidential matters. It is inexcusable and unnecessary even for members of the patient's family to discuss with one another the patient's private concerns, or his queer or unreasonable or annoying ways. During sickness the skeletons in many people's mental closets walk forth. The wise and considerate attendant with the welfare and happiness of her patient uppermost in mind will hold as a trust that confidence which at an unguarded time accidentally comes to her. She will zealously safeguard any intimate information from curious comment and from gossiping tongues.

RECORDS

The home attendant should keep an accurate record of the various events of the patient's day, the patient's symptoms, medicine, diet, treatment, etc., so that the doctor may have a continuous record and so that another person taking charge temporarily may

DAILY RECORD

Date	Hour	Temp.	Pulse	Resp.	Diet and medicine	B.M.*	Urine	Remarks
Jan. 1.	4 p.m.	100	76	24	Prescription #30425 1 tsp† Water—1 glass Supper: Soft egg on toast—butter—stewed fruit—milk Prescription #30425 1 tsp. Water—1 glass Laxative—1 pill		8 oz.	Sponge bath
	5 p.m.							
	6 p.m.							
Jan. 2.	8 p.m.	99	74	22	Hot milk—glass Prescription #30425 1 tsp. Water—2 glasses Breakfast: Orange juice—cooked cereal and cream—toast with butter—glass milk	1	8 oz.	Asleep
	9 p.m.							
	3 a.m.							
	8 a.m.							Slept most of night—cheerful morning care
	8:30							
	9:30							
	12.							Bath Short nap Sat up 1 hour

* Bowel movement.

† Teaspoon.

know just what has been done for the patient. The record must be written, each treatment as soon as given, each symptom when noted. Otherwise details cannot be recorded exactly. It should be as simple and concise as possible. It is the place for facts, not for opinions, and if inaccurate it is worse than none. It is better not to keep the record in the patient's room, for the patient should not see his own record, nor hear its contents discussed. The doctor usually writes his orders on the record sheet itself, or on a separate sheet to be attached to the record for reference. Blank record forms can be purchased, but a form that is made at home is entirely satisfactory. An example of a daily record sheet such as may be prepared by the home attendant has been given on the preceding page.

QUESTIONS AND EXERCISES

1. List the duties of the home attendant.
2. What points are important in the dress of the attendant? In the conservation of her strength?
3. What should be the attendant's attitude in regard to the private affairs and the personal idiosyncrasies of her patient?
4. What precautions should be taken to avoid unnecessary noises in a sick room?
5. What are some rules to observe in admitting visitors to a sick room?
6. Plan the routine care for twenty-four hours.
7. Show the method of getting a patient up in a chair. Back to bed.
8. Show the before breakfast toilet.
9. Show what should be done to make the patient comfortable for the night.
10. Prepare an illustrative daily record sheet which might be prepared in caring for (a) A patient ill with pneumonia; (b) A child convalescing from measles.

FOR FURTHER READING

Home Care of the Sick: "When Mother Does the Nursing"—Clara D. Noyes (National Health Series).
Personal Hygiene and Home Nursing—Louisa C. Lippitt.

CHAPTER IX

EQUIPMENT AND CARE OF THE SICK ROOM

Adequate care of the sick consists to a large extent in rendering the physical and mental surroundings favorable. A sick person, since his strength is already depleted, needs not only to have his resistance increased in all possible ways, but also to have all his remaining strength conserved by eliminating every unnecessary tax upon it. In sickness every small modification which works toward such conditions as desirable temperature, abundant fresh air, correct feeding, and complete rest and relaxation becomes a factor of immense importance. A seemingly trivial change may remove the cause of a slight fatigue, chill, or nervous strain and so contribute much to the welfare and comfort of the patient. Every effort should be made to insure as satisfactory arrangements as possible, even when perfect provision for the care of the sick seems out of the question. In many houses a few simple changes will produce excellent results, although ideal conditions are seldom found except in buildings originally planned for the sick. In many instances, perhaps only a few of the suggestions here given will be needed. Common sense must be the guide in this regard. In illness that is slight and likely to be of short duration, a patient may be more distressed than benefited by radical changes in his surroundings. Except when certain

essentials are concerned, great consideration should be given to a patient's preferences. On the other hand it is not reasonable to make an entire family miserable in order to gratify some slight whim.

Choice of a Sick Room.—A south or east exposure is generally best for a sick room. Sunshine during a part of the day is essential though a south room may in some climates be undesirable in very hot weather. The room should be quiet, near the bathroom, and well removed from cooking odors. It should be situated so that good ventilation is possible. It is desirable, though not necessary, for it to have more than one window which in summer must be thoroughly screened. It should be possible to open the window without exposing the patient to a direct current of air, and to open the door without placing him in full view of all who pass through the hall. Screens may of course be used to accomplish these purposes when necessary.

It is essential for the patient to have a room to himself. Unless he needs care or help or watching at night, even the person caring for him should sleep in a separate room. The rest of the family should keep their possessions in other rooms. Closets opening into the room, bureaus, and chiffoniers should be emptied of the belongings of other members of the family, to prevent people from tiptoeing into the sick room at all hours to remove garments. The sick room should for the time belong exclusively to the patient, and resulting inconvenience should be borne by well members of the family.

Every possible care should be taken to secure quiet and to exclude from a sick room unnecessary noises of all kinds. Flapping curtains, rattling win-

dows, squeaky doors and rocking chairs, heels without rubber, ticking clocks, refractory bureau drawers, and rustling newspapers are among the everyday sounds that irritate the nerves of sick and well alike. Ordinary out-of-door noises do not usually disturb the sick, except when the country patient is brought to the city, or the reverse. Near by and generally avoidable noise is the kind that harasses a nervous patient.

Usually a person's own room is more restful and less disturbing than a strange place, but if it serves as a work room as well as a bedroom, it may easily be the worst place during sickness. The sight of a desk piled high with papers, or a basket overflowing with accumulations of family mending, may actually delay recovery. Even the room itself may constantly suggest work, and work necessarily left undone. The essential thing to remember is that mental rest is equally as important as physical relaxation. Every effort should be made to secure them both.

Furnishing.—All the furnishings of a sick room should be easy to clean. Superfluous articles of any kind necessitate added care, and in consequence they should be removed at the outset. Moreover, the simplicity thus gained, the order and cleanliness made possible produce an atmosphere most inviting and restful to a sick person. It is upon these qualities that the attractiveness of a well planned sick room is based.

Usually the finish and woodwork of the sick room is not at the time a matter of choice. However, in that regard it may be said that the woodwork as in any other room should have a hard finish, and angles and corners that harbor dust should be as few as

possible. Hard wood floors without cracks are best from the point of view of cleanliness and convenience. A few light, washable rugs make the best floor covering, but very small rugs on highly polished floors slide easily and are decidedly dangerous. Linoleum is now frequently used, and if securely fastened down is quite satisfactory and very easily cleaned. Carpets are objectionable.

People are realizing more and more the sensation of restfulness and well-being which comes from properly chosen wall coverings. These may be so planned as to work positively and beneficially against both eye strain and nervous fatigue. Tinted walls or plain papers are best for bedrooms. Colors should be neutral, usually tones of tan, buff, soft gray or green. If a design is to be used, its selection is of great importance. Under continued observation, designs may be interesting and pleasing in form and color combination, or they may become tiring or even irritating to the sick person not able to escape from their influence. Weak or nervous patients sometimes become quite exhausted from attempting to follow an intricate pattern, or from counting over and over a design that is frequently repeated on the wall. If the patient sees grotesque faces and figures in the design, the paper is more objectionable still.

Necessary furniture includes the bed, which will be discussed in detail later, a small table to stand by the head of the bed, a dresser, two chairs and a wall thermometer. If the patient is able to sit up three chairs are needed, of which one should be an armchair with a high back. Elaborate, carved, or upholstered furniture is unsuitable in a sick room, but, if it must be used, it should have washable covers.

Other desirable articles of furniture are a couch, screen, foot-stool and a second, larger table. In few cases, if any, is anything further really necessary, although patients frequently desire special articles to which there can be no objection.

Simple, washable curtains and spotless, white covers for table and dresser are desirable. Heavy, unwashable curtains or hangings as well as other ornaments may be easily removed for the time, thus saving unnecessary work and also helping to secure that sense of restful simplicity, mentioned before which is without doubt helpful to the sick. Pictures give pleasure if suitable and used with discrimination. Suitable subjects, simplicity of line, repose rather than motion are to be sought especially in a choice for a sick room.

Flowers give great pleasure to the sick by adding color, variety and interest to their surroundings. Cut flowers will often stay fresh and beautiful for several days when carefully tended and given fresh water daily. Only a few inexpensive blossoms are frequently quite effective and most acceptable to the person shut in from garden, wood and field. A thrifty, growing plant is a source of continued interest particularly to an invalid long confined to bed. Flowers having heavy or strong pungent odors are usually objectionable.

Ventilation.—A patient needs fresh air certainly as much as a well person. His room should be thoroughly ventilated night and day. A fireplace makes the problem easier, but in most cases an open window is the main dependence. It should be possible to open windows at the top as well as at the bottom, and the patient may be protected from a direct draft by a screen, or by a sheet stretched along the side of

the bed and fastened at the head and foot by tying it around the posts.

Ventilating a room without subjecting the patient to drafts is not always easy. One method is to insert a board three or four inches high under the lower sash so that air is admitted between the two sashes. Once or twice a day the room should be given an air flush by opening windows and doors until the air has been completely changed. The patient must be well covered during the process. A scarf may be used to protect the head. An electric fan is useful in summer, but it should not be directed upon the patient nor be placed so close to the bed that the strength of the current becomes objectionable.

Heating.—Great care should be taken to maintain a suitable temperature in the sick room, and for this purpose a thermometer in the room is a necessity. Between 65° and 68° is generally the best temperature, and hot water bags and extra covers may be given if the patient is chilly. During a bath or other treatment in which the patient is more or less exposed the temperature should be 70° . The temperature at night may be lower; how low will depend largely on the patient's condition and on what must be done for him during the night. Hot water, steam heat, or electricity is best for the sick room since any of these forms do not usually so greatly exhaust the humidity of the atmosphere as do other methods of heating. It is especially important that there be a reasonable amount of moisture in the air. The means for securing this are given in Chapter II, p. 23 to which refer. Gas or oil stoves should never be used except in emergencies, and then for a short time only.

Lighting.—Sunlight is one of the most powerful disinfectants, and for this reason, if for no other, it is needed in every sick room. Sunshine too, tends to give buoyancy and exhilaration to a patient's spirits, a most valuable aid toward recovery. Indeed, physicians in their treatment of many ailments are relying more and more upon the proved curative as well as preventive powers of sunshine. The sun is as beneficial to the human body as to the growing plant. Ordinary, well-regulated light is best in a sick room, and except in a few diseases, especially those in which the eyes are affected, it is undesirable to darken the room or to encourage in any way an appearance of gloom. The patient's eyes, however, should be protected from bright lights shining directly upon them. In this connection it is well to remember that lights and their reflections strike differently upon the eyes of a person lying down from the way in which they strike the eyes of a person sitting or standing. A light that seems agreeable to the attendant may therefore be painful to the patient. Various means may be devised for shading the lighting at different times of the day thus avoiding both discomfort and eyestrain.

Almost all persons sleep best in dark rooms, and in most cases it is undesirable for a sick room to be lighted at night. The attendant however must be able to see what she is doing and generally needs a shaded lamp or a candle, a small night light, or an electric flash. It should be possible to see the patient clearly in case of need, otherwise serious changes in his condition occurring in the night may pass unnoticed.

A reading lamp on the bedside table is desirable for patients allowed to read, but reading in bed

even with a well-regulated light is fatiguing, and should not be continued for long, uninterrupted periods. A pocket flash or an electric bedside light is the only safe device for the use of a patient, who wishes to consult a watch at night. Matches in the hands of any patient always involve grave risk. Some patients find twilight a time of great depression. In such a case it may be shortened by drawing the shades early, turning on the lights, and remembering to stay in the room.

Cleaning.—The sick room should be kept thoroughly clean at all times, and the less dust stirred up in doing so the better. Vacuum cleaning, aided by the many attachments now manufactured, is perhaps the most effective and the most desirable method. The noise, which is its only disadvantage, is not a serious objection in most cases. Oil mops and dustless dust cloths are necessary for polished floors and furniture and are easily procured. For enamel, damp dust cloths may be used. If an ordinary broom or a floor brush is to be used it should be covered with a damp cloth or perhaps dampened. Sweeping compound may be used on floors of hardwood or upon linoleum. Damp sawdust or bits of paper may be used on some floors. Dry sweeping or dusting is ineffective and in fact uncleanly. The cleaning of rooms after a communicable disease will be considered later.

Order.—A sick room must be kept tidy as well as clean. The effect of order is quieting, but it should be maintained whether or not the effect upon the patient is apparent. Food and medicine should be kept in their proper places and all used dishes, tumblers, soiled linen, etc., should be removed at

once from the sick room and properly cared for. Unnecessary articles should not be found in the room at any time. Every necessary article should be kept in its place, and its place should be carefully planned.

The maintaining of order in the room can ordinarily be accomplished with entire comfort to the patient. All patients, especially old people, want certain possessions within reach, and their wishes should be considered in spite of the fact that the æsthetic effect is perhaps far from good. For instance, a perfectly smooth bed is undesirable if in order to make it smooth the patient's feet must be tucked in so tightly that they are uncomfortable. It would be a mistake to remove an old man's newspapers before he has read them, even if he persists in strewing them all over the floor. Order can however be combined with kindness and the utmost consideration of the individual preference of the sick person.

Each detail of the equipment and the care of the sick room must be so ordered as to serve the comfort and the well being of the patient. Consideration of many factors is constantly necessary. His surroundings must contribute to needs both physical and mental. They must be clean, hygienic, health promoting. They must be restful and individually pleasing.

QUESTIONS AND EXERCISES

1. What are the essentials of a good sick room as to (a) situation and exposure; (b) lighting and heating; (c) furnishing; (d) ventilation.
2. How may a sick room be ventilated without exposing the patient to drafts?
3. How should the bed be placed in relation to doors, windows, and walls?
4. How should a sick room be cleaned?
5. What in general are the duties of the attendant?

6. Make a plan of your own bedroom, and show what changes, if any, would be desirable if it were to be used as a sick room.

7. Show various methods for shading the eyes of patient both from sunlight and artificial light.

FOR FURTHER READING

Home Care of the Sick: "When Mother Does the Nursing"—Clara D. Noyes (National Health Series).

Personal Hygiene and Home Nursing—Louisa Lippitt.

CHAPTER X

BATHS AND BATHING

Bathing is necessary in sickness no less than in health. It stimulates and equalizes the circulation, is soothing in feverish conditions, is refreshing to most people, and by affording a certain amount of exercise, it lessens the fatigue of lying in bed. Moreover, without frequent bathing it is impossible to keep the skin in good condition, since scales of dead skin, oily matter and solid substances left by perspiration collect on the surface of the body when a person is lying still in bed as well as when he is leading an active life. The common belief that sick people are likely to catch cold from bathing is quite unfounded. Every patient, unless his condition is such that the doctor orders otherwise, should have one complete, cleansing bath each day. In addition to the regular cleansing bath other kinds are often prescribed as medical treatment. The physician will give exact instructions as to the modifications which he wishes whenever these special baths are to be the duty of the home attendant.

CLEANSING BATHS

The Tub Bath.—A tub bath may be given to a sick person only with the physician's permission, but if allowed it is the simplest and most satisfactory method. Special precautions must be taken to guard the patient from fatigue and chill. The bathroom

and everything to be used should first be made ready. Necessary clothing, towels, and toilet articles should be collected and arranged conveniently. A chair may be ready, covered with a blanket, and the bath mat placed beside the tub. The temperature of the bathroom should be so regulated that it is about 70° F. or a little lower if the room is likely to become overheated as the bath proceeds. The bath water is drawn last. Its temperature, if tested by a thermometer, should be between 96° and 100° at the beginning or just pleasantly warm, not hot, and may be increased if desired. A hot water bottle should be filled ready to place at the patient's feet upon return to bed. The bath towels may be placed on it to warm.

Finger and toe nails may, if necessary, be cut or filed before the patient leaves the bed. Put on the robe and slippers. When the patient is up, strip the bed, turn the mattress and leave the bedding to air. Assist the patient to the bathroom, and seat on the chair placed ready. Wash and dry the face, neck, and ears. Help carefully into the tub. The bath should last not more than ten minutes, and should be stopped at once if any unusual symptom, faintness, or other difficulty is shown. A patient should be given a tub bath only when strong enough, but even so it is wise to have some one within call to help the attendant in case of need. Soap the body well, using a brush for feet and hands. Rinse, and rub briskly to stimulate the circulation.

Give careful support to a sick person getting out of the tub. Seat the patient in a chair and draw the blanket closely from neck to feet. Dry thoroughly with warm towels, giving particular care to the folds of the body and spaces between fingers and toes.

A clean warmed gown, robe, and slippers are put on. Unless the bed has been made by some one else during the bath, spread the lower sheet and any necessary protection quickly in place. Return the patient promptly to bed, with covered hot water bottle at the feet. Place the upper covers. Make all secure, and finish the bed according to previous instructions. If the patient seems chilly, give a hot drink and an extra blanket. After the sick person has been made comfortable, clean the tub, and put the bathroom in order.

As a convalescing person grows stronger, the preference is to take most of the bath alone. This may be done with the physician's permission, if everything is placed in readiness and any needed assistance given. However, even patients supposedly able to take tub baths without assistance should not lock the bathroom door nor be left alone too long a time.

Bed Bath.—In bathing, as in all care of the sick, a manner which is firm, sure, and also gentle, gives confidence, strength, and assurance to the patient. In handling, the use of the whole hand, not the fingers only, is more acceptable. Hands should be smooth and warm. The most effective work is easy, smooth, quiet, with long, even strokes, avoiding short, abrupt movement, and any jerking or jarring.

Practice is essential in order to give a bed bath skillfully. The aim is to make the patient thoroughly clean and thoroughly dry, without chilling, fatiguing, or exposing, without making the bed damp, and without unnecessary haste or delay. The general principles and one method of giving a bed bath follow, but any method that accomplishes these aims is likely to be satisfactory.

First see that the room is about 70° F. and likely to remain so, and exclude drafts. Collect everything to be used, including a blanket to cover the patient, an old blanket or large bath towel to protect the bed, at least two other towels, one a bath towel and the other a face towel, two wash cloths, soap, nail brush, powder, rubbing alcohol, comb and brush, nail file, scissors, etc., fresh bed and personal linen; a large basin containing water at 105°, a pitcher of hot water, and a slop jar. Remove and fold the spread. Remove the covers, except one blanket and the top sheet. Move the patient to the near edge of the bed. Place the blanket to be used as a cover during the bath, and strip down the blanket and sheet beneath it. Remove these and place to air. Remove all the pillows but one, and place the bath blanket under the patient as the under sheet is placed in bed making. If a bath blanket is not used, keep the bath towel under the part that is being bathed by moving the towel from place to place.

Remove the night gown in the following way. Let the patient lie on the back, with the knees flexed. Draw the gown up to the hips. Raise or ask the patient to raise the hips so that the gown may be drawn up above the waist. Raise the head and shoulders with one arm and draw the night gown up to the neck with the other. Remove one sleeve, draw the gown over the head and then off the other arm.

The patient is now ready for the bath. Wet the wash cloth thoroughly, but wind it around the hand so that it will not drip. Wash the face, neck and ears first, dry them thoroughly, and using the second wash cloth, wash the arms and hands, chest and

abdomen, giving particular attention to the armpits and the navel. Raise the blanket slightly with one hand to keep it from becoming damp, but expose the patient as little as possible; the arms and legs need not remain covered while being washed. Dry each part thoroughly before washing the next. Turn the patient on one side and wash the back, the buttocks, and upper part of the thighs. Give special attention to the fold between the buttocks. Turn the patient on the back, and wash the thighs, legs, and feet. If it is important to move the patient as little as possible, leave the back until last so that the under sheet may be changed without turning her again. Cut the toe nails if necessary before washing, and clean them carefully afterward. Unless there is a reason to the contrary, wash the hands and the feet in the basin, first protecting the bed with a towel, newspaper or oilcloth. Be sure to clean well between the toes, and to dry the feet thoroughly; they may need some friction. Throughout the bath empty and refill the basin as necessary to keep the bath an even temperature.

Wash the genital region last. Let the patient lie upon the back with knees flexed and separated, or upon one side with the knees flexed and one slightly raised. Patients who are able may take this part of the bath themselves with whatever assistance may be necessary. The attendant, however, must either do this or make sure that the patient does it thoroughly. To neglect a helpless patient is always unkind, and no less unkind when the motive is a mistaken sense of modesty. If discharge from the genitals is present use absorbent cotton, or clean, soft old cloth to wash the parts, and burn it afterward.

This condition should always be reported to the physician who sometimes directs to place the patient on a bed pan and rinse the parts by a gentle stream of warm water poured from a small pitcher. After the attendant has completed this part of the bath, she should always wash her own hands thoroughly.

After the bath, the patient may be rubbed with an alcohol rubbing solution. Rub the points where pressure comes, especially the back. Apply a little toilet powder if the patient desires it. When the toilet is complete remove the bath blanket. Make the bed and put the room in order.

Care of Mouth and Teeth.—In sickness the mouth and teeth require more than ordinary attention. Indeed, the condition of a patient's mouth is a fair index to the quality of the care received. If the patient can brush the teeth this should be done in the morning, at night, and after meals. At those times the attendant, without waiting to be asked, should bring a towel, tooth-brush, cup of tepid water, tooth paste or powder or salt, and a small flat basin or dish to receive the used water. The process is generally more thorough when the patient does it, and even a patient unable to sit up can brush the teeth successfully if the assistant holds the powder and cup of water, and provides a basin, shallow enough to be used by turning the head to one side.

The attendant must cleanse the mouth of a patient who is unable to do this. If cleansing is neglected, a dark tenacious substance collects upon the teeth and gums. This is composed chiefly of food particles, bacteria, mouth secretions, and worn out cells of the mucous membrane. Once formed it is difficult to remove. Hence the mouths of all patients and

especially those who have fever, must receive proper care from the very beginning of illness. Cotton swabs are convenient for cleansing the mouth. They are made by winding a small piece of absorbent cotton upon a wooden tooth-pick or upon a longer smooth clean stick.

To cleanse the mouth of a helpless patient, take to the bedside the mouth wash prescribed by the doctor, a towel to protect the bedclothes, several swabs, and a receptacle for used swabs. The latter should be a strong, paper bag or several thicknesses of newspaper. Clean the tongue, gums, teeth, and spaces between the teeth gently but thoroughly, using especial care if the gums are tender. Dip only clean swabs in the solution, discard each one after using it once, and burn it afterward. Let the patient, if strong enough, rinse the mouth after cleansing it. If the mouth is very dry, encourage the drinking of more water, and be sure fresh water is always within reach at the bedside. Notify the doctor if the gums and tongue crack or bleed, since he may wish to order a special mouth wash. Cold cream or boracic ointment may be used if the lips are dry and cracked.

Artificial teeth should be thoroughly brushed and cleansed, and kept in cold water, if taken out during the night.

Care of the Hair.—Long hair, if neglected, becomes tangled and matted in a surprisingly short time. The patient unless actually in a dying condition is not too sick to have it properly attended to at least once a day. Before combing the hair protect the pillow with a towel. Part the hair in the middle from the forehead to the nape of the neck, and draw it to either side. Begin to comb at the ends, holding the strand of hair

firmly in one hand placed between the head and the comb; in this way tangles can be removed without hurting. After combing and brushing the hair, braid it in two braids, beginning near the ears. Draw it tightly or loosely near the head as the patient prefers, but remember that firm braids mean fewer

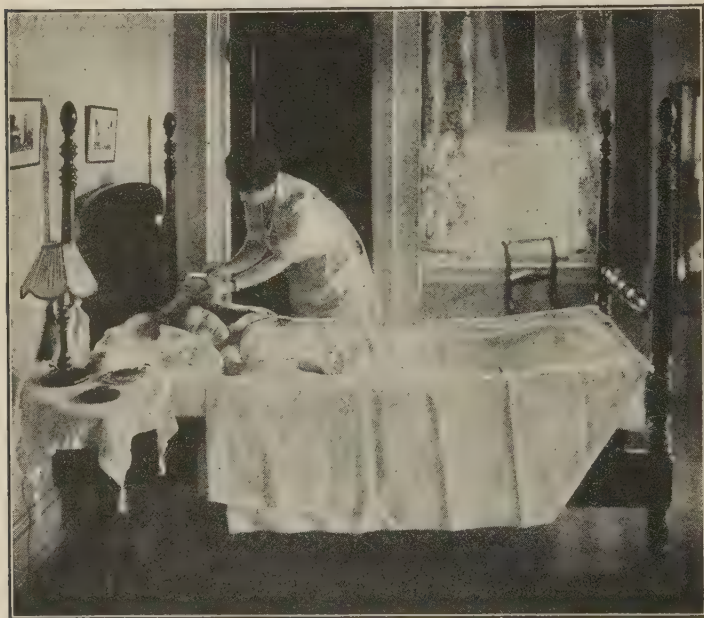


FIG. 21.—Combing the patient's hair—the pillow well protected.

tangles. If the hair is heavy or badly tangled the patient may be too much fatigued to have it all combed at one time. In this case braid the part that has been finished and complete the work later.

Cleansing the Hair of a Bed Patient.—The scalp and hair of the bed patient may be cleansed successfully without the use of a soap and water shampoo which, unless given by a graduate nurse, frequently

involves too great danger from wetting the bed or chilling and unduly tiring the patient. The following method may usually be used by the home attendant with comfort and safety to her patient. Place a towel over the pillow and protect the upper bed covers likewise. Turning the patient's head to one side, work with the hair from one half of the head. Any preferred hair tonic may be used. Pour the tonic into a small dish for convenience. With a small clean cloth rub the tonic down the central part. Make another part a short distance from the central line. Similarly here apply the tonic with the cloth and massage gently with the finger tips of the other hand, at the same time. Continue to part and cleanse until one entire side has been covered. Alternate brushing and rubbing with fingers and towel should be continued until scalp and hair are thoroughly dry. Braid the hair and proceed in a similar manner with the other side. This cleansing will keep the scalp clean except in prolonged illness, will allay itching and will ordinarily be found most soothing and acceptable to the patient. At the same time, it is less dangerous than the wet shampoo for the sick person in bed.

Hot Foot Bath.—Properly speaking, a hot foot bath is medical treatment, but it is taken by many persons to relieve colds, headache or insomnia. Let the patient sit, well wrapped, with the feet in water at about 105°. Increase the temperature gradually by adding hotter water. Take care to add hot water slowly at the outside edge and not to pour it directly upon the patient's feet or ankles. Otherwise they may be scalded.

Mustard may be added to the bath water in the proportion of one tablespoonful of mustard to each

gallon of water. If mustard is to be used, tie it securely in a small muslin bag, adding this after the feet are in the water and squeezing to dissolve thoroughly. The bath may continue for ten to twenty minutes, and the feet should be dried afterward without friction and with special care between the toes.



FIG. 22.—1, Beginning to fold the blanket.

The bed should have been previously prepared with a covered hot water bag to warm it at the foot. The patient must go to bed at once. This is no time to wander about, clearing away the bath articles, doing forgotten things, getting chilled, and thus losing all the good effects.

A foot bath may be given easily to a patient in bed. Bring to the bedside a blanket, a towel, the tub about one third filled with water, and something with which to protect the bed. This may be a rubber sheet, a heavy bath towel, an old blanket folded or several thicknesses of clean newspapers. Loosen the upper



FIG. 22.—2, Blanket wrapped closely about the tub and bedclothes put in place.

covers at the foot of the bed. Fold them back above the patient's knees. Flex the patient's knees, put the blanket and the bed protector, covered by a bath towel, under the feet. Place the tub on the bed, raise the legs and feet and lower them slowly into the water. Fold the blanket closely about the tub and over the legs and knees. If necessary the water may

be warmed as previously directed. After the bath remove the tub. Use the towel, unless it is wet, to receive the feet. Dry the feet thoroughly. Place the hot water bag previously prepared. Cover the patient warmly, and make the bed.

Cooling Sponge Bath.—For improving the circulation soothing feverish patients, doctors frequently order cooling sponge baths. The home attendant who has had practice in giving the cleansing sponge bath will use much the same method for the cooling sponge. The bed must be carefully protected as usual and the patient covered by a light-weight blanket or, in summer, perhaps by a sheet. Shield from drafts as usual. A cold compress is applied to the head and a hot water bottle to the feet. Tepid or slightly cooler water is used without soap. The washcloth should be wrung out enough not to drip. Bathe the body without friction, using long light strokes. Sponge for an equal time, arms, legs, chest, and back, but not the abdomen, using ten to twenty minutes for the complete bath. Pat dry with towels. The patient should be carefully watched during a cooling sponge bath. If chilling or shivering, or if lips, fingers or toes turn bluish, or any other unusual symptom occurs, the bath should be stopped at once, and the patient covered with warm blankets. Cooling baths are given to sick patients only upon the physician's order. Babies, and small children, react rapidly to a cooling sponge. For them use warm water, sponge for five minutes only, and watch closely during the bath.

QUESTIONS AND EXERCISES

1. What may a bath be expected to accomplish in addition to cleansing?
2. In giving a tub bath, what precautions should be taken to avoid chilling the patient? To avoid tiring the patient?

3. What symptoms would lead you to think that a tub bath was not agreeing with a patient? What should you do in such a case?
4. Name six essentials of a skillfully given bed bath.
5. What preparations should be made and what articles assembled before beginning a bed bath?
6. Show the method of bathing a patient in bed.
7. Show the preparations and assistance given to a patient who can care for his own teeth.
8. Show the care of the mouth of a helpless patient.
9. Show the daily care of long hair of a bed patient.
10. Show a method of cleansing the hair of a bed patient.
11. Explain the method of using mustard for a hot foot bath.
12. Show how to give a hot foot bath to a patient in bed.
13. Under what conditions may a cooling sponge bath be given by the home attendant?
14. In giving a sponge bath, what symptoms would cause you to stop? What would you do in such a case?

FOR FURTHER READING

Home Care of the Sick: "When Mother Does the Nursing"—Clara D. Noyes (National Health Series).
Personal Hygiene and Home Nursing—Louisa C. Lippitt.
The Human Mechanism—T. Hough and W. T. Sedgwick.

CHAPTER XI

APPLIANCES AND METHODS FOR THE SICK ROOM

Patients who are confined to bed even for a few days often suffer acutely from muscular tension, from pressure, and from fatigue due to lack of exercise. Indeed, many a sick person is surprised to find that the bed which had seemed so infinitely desirable can change into a place of torment after a few short days of illness. "Bed-weariness" is hard to bear in any case of illness, but it is doubly hard for persons who are really helpless.

The patient, unless an experienced sufferer, usually has no idea what could or should be done to make him comfortable. At the same time, an inexperienced helper, though full of good will, is often discouraged to find that the arrangement she had thought perfect soon fails to satisfy the restless patient. However, the attendant who devotes thought and ingenuity to removing small annoyances can do much to alleviate bed weariness and misery.

DEVICES FOR GIVING SUPPORT

The proper support of all parts of the body of the sick person gives a comfort which makes possible complete relaxation both bodily and mentally. The rest thus secured goes far toward furthering recovery or hastening recuperation. For this purpose the variety and number of pillows one patient can use is

almost unlimited. It will be found that these pillows will need to be arranged in many different ways in order to sustain the weight of every part of the body in the most comfortable manner. With each frequent change of the patient's position, a corresponding change of the pillows is necessary.

For the Patient without a Head Rest.—A weak patient, when lying on his side, should have his back supported by a pillow placed lengthwise against it and tucked in, in the manner most comfortable to him individually. When he lies on his back, a pillow should be placed under his knees to lessen muscular strain. If he may be raised in bed, several pillows are needed at his back and under his shoulders and arms, to support him comfortably.

For the Patient Sitting Up in Bed.—A back rest is useful for a patient who can sit up in bed. Satisfactory back rests of several types can be purchased, or one may be improvised from a suit case or a small straight chair placed on the bed bottom side up, so that its legs lie against the head of the bed and its back forms an inclined plane. Back rest and home substitute alike should be tied firmly in place and covered by several pillows to make them comfortable. Other pillows should be used to support the patient's arms.

A person who is sitting up in bed always tends to slip down toward the foot. This tendency may be corrected by using a knee pad or pillow or a footrest.

The knee support may be conveniently made by placing a pillow diagonally on a sheet. Fold the sheet cornerwise, enclosing the pillow. Twist the ends thus formed to hold the pillow in place. This gives a length at each end of the enclosed pillow with which

to tie the support to the head or the sides of the bed. A pillow may be used under the knees, by folding it over a long strip of strong cotton cloth, the ends of which are then tied to the sides of the bed or brought up to the head, and there tied to prevent slipping. A cylindrical cushion six or eight inches in diameter

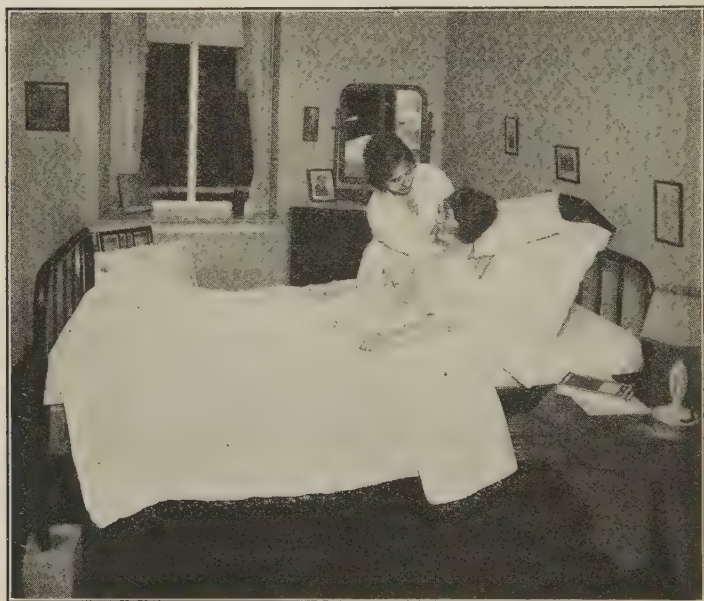


FIG. 23.—Back rest improvised from the ever-handy suitcase.

and as long as an ordinary pillow, stuffed with firm material, may also be used for this purpose. It should be held in place by strips of strong cotton cloth or ticking sewed to the ends of the cushion and tied to the head of the bed. Any cushion or pillow used in this way should have a washable slip, and occasionally it may be necessary to protect the tick.

A hard pillow or folded blanket may be placed in the foot of the bed in such a way that the patient may brace his feet against it. A short board may be well padded and arranged for the same purpose. Fasten ropes to the board, as the ropes of a swing are fastened to the seat. Set the padded board on edge at a convenient point below the patient's feet, and hold it in place by tying the ropes of the "swing" to the head of the bed.

It is highly important that extra covering for shoulders and arms be provided when a patient is using a head rest or sitting up in bed. A short bed jacket knit or made from light-weight woolen will prevent chilling. A small shoulder blanket or a shawl secured at neck and at wrists may be used in the same way.

Bed Cradles.—Frequently because of injury, because of unusual sensitiveness or simply from long continued stay in bed, it is desirable to keep the weight of the bed covers from some part of the body, as the foot or the knee. Supports called bed cradles are used for this purpose.

They are semi-circular pieces of wood or iron fastened together so that they will stand up. A satisfactory cradle may be improvised as follows: Cut a barrel hoop in two, cross the halves at right angles and tie them together firmly. Place the cradle over the affected part and under the bed clothes. A smaller cradle may be made by taking sections that are less than half of the barrel hoop or a strong paste board box may be used for this purpose by cutting the sides as necessary. If used for one foot only, the cradle should be small enough not to interfere with the motion of the other foot. If used for both feet, it

should be large enough to allow some freedom of motion. The cradle leaves an air space. Therefore for warmth the feet should be wrapped in a piece of soft flannel or of old light-weight blanket. A cradle used for the protection of the abdomen should extend a little beyond the body on each side.

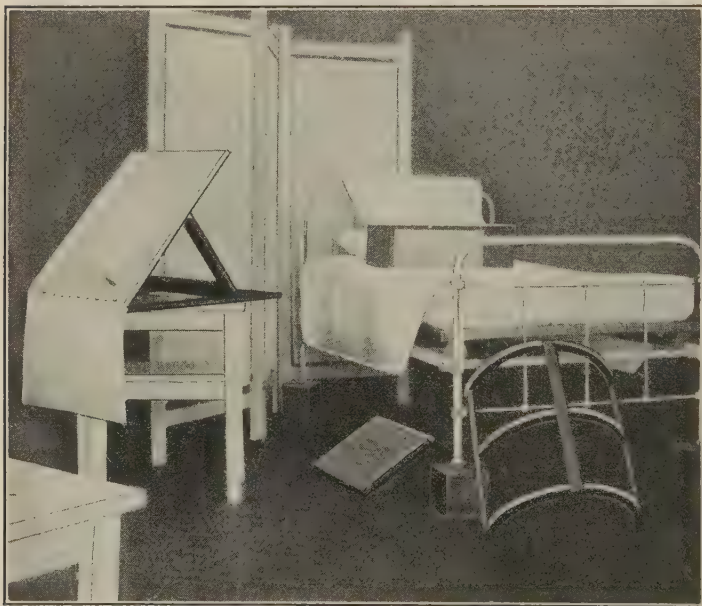


FIG. 24.—Equipment which may be made at home.

Bed Tables.—Adjustable tables are convenient for patients who are able to sit up in bed. These tables are supported on one side only so that they may extend over the bed. Another kind of bed table has short legs and stands directly on the bed. Such a table can easily be made at home from a wide board with supports six or eight inches high nailed to each end. A lap board may serve for temporary use.

Home Devices.—The home attendant will think of many devices and contrivances right at her hand which give the needed comfort to her patient. In planning these substitutes, their desirability may be tested by the following questions:

1. Will the device accomplish the purpose for which it is intended?

2. Is it cleanly and practical?

3. Will its use involve any possibility of accident or danger to the patient?

Home-made substitutes are often better adapted to the need than an expensive apparatus.

Purchased Appliances.—If sick room appliances must be bought, it is well to remember that simple standard designs are best. Complicated apparatus is soon out of order and is generally a trial both to the patient and to those who must adjust it. Persons taking care of chronic patients may often obtain valuable suggestions in regard to appliances by consulting a visiting nurse or the superintendent of the local hospital.

THE CARE OF THE PATIENT'S SKIN

With the use of whatever appliances and devices for support, the supreme importance of the care of the patient's skin must ever be kept in mind. There are no substitutes for bathing, rubbing and keeping dry, nor for regular changing of position. These are most necessary both in the prevention of the initial bed-weariness and of that subsequent condition which sometimes results in bed or pressure sores. Such sores have several causes, chief of which is continued pressure upon one part of the skin.

The weight of the body, or of a part of the body, if it comes for a long time upon one place finally interferes with the circulation in the tissues on which the part rests, and consequently interferes with the nutrition of the affected part. Any tissue to which the blood is not bringing all its necessary food supply tends to lose its tone, to become weak, and if the condition persists, to break down altogether.

Bed Sores.—The direct *cause* of bed sores then is pressure, and pressure is aggravated by moisture, wrinkles in the bed clothes, crumbs or other hard particles, lack of cleanliness, friction of any kind, or by rough, careless handling. Bed sores occur most often over bony prominences, such as the end of the spine, the elbows, heels, shoulders, hips, ankles and knees, but they may form anywhere, even on the ears or the back of the head. They are more likely to appear on thin, aged or depleted patients. However these painful and serious sores can be prevented almost always by faithful care. Too frequently they result because the home attendant is uninformed as to the means for preventing them and as to the need for everlasting vigilance.

Prevention of bed sores depends upon keeping the skin dry and clean and upon relieving pressure by special devices and by turning the patient at regular intervals. The parts where pressure comes should be washed at least twice daily with warm water and soap, rubbed frequently with a rubbing solution to improve the circulation and to keep up the tone of the skin, and powdered with a little good toilet powder. Much powder is likely to do harm by collecting in hard, irritating particles. The bed should be kept constantly dry and smooth, and free from crumbs,

lumps, wrinkles or other inequalities. Prolonged pressure should be relieved by turning the patient often,—once every waking hour is not too often if the body is emaciated,—and by pillows, pads and rings.

Small pillows or thick pads of cotton should be placed under the patient's back and shoulders, between the knees and ankles when he lies on his side, and in other places where sores are likely to develop. For the end of the spine rubber air rings are useful, but few patients like them for a long time. They should not be inflated more than necessary to raise the affected part from the bed. If much inflated, they are uncomfortable and may do harm. The ring may be covered with a muslin pillow case, or it may be wound smoothly with long strips of bandage or old muslin. Ordinary cotton batting wound with strips of muslin may be made into rings and used to remove pressure from heels, elbows, or other parts. These cotton rings are less heating than pads, and give better support.

Early Signs of Pressure.—The first sign of a bed sore is either redness of the skin or a dark discoloration like a bruise. Every point where a bed sore may form should be inspected daily. If the slightest symptom of a sore appears, the patient must not lie on the affected part, and every effort should be made to keep the skin from breaking. Vigorous rubbing at this stage is dangerous, and will by no means make up for previous neglect. The condition should be reported to the doctor at once. If in spite of all efforts the skin does break, a peculiarly difficult kind of open wound results which must be treated and dressed according to the doctor's directions.

BEDPANS

Bedpans are utensils to receive bowel and bladder discharges of patients lying in bed. Enamel bedpans are better than porcelain, although more expensive. The shape known as the "Perfection" is best for general use. A "slipper" bedpan, although harder to clean and ordinarily less comfortable, may be preferable if it is especially difficult or undesirable to raise the patient. The square or douche pan is preferred by some people, and is especially useful when the quantity of discharge is large, as after an injection.

Use of Bedpan.—When a patient asks for the bedpan it should be brought if possible without a moment's delay, not only because no other form of neglect makes a patient realize her helplessness more acutely, but also because the desire to use it often passes quickly and delay may encourage the habit of constipation. If the patient does not ask for the bedpan, the attendant should offer it at suitable times. Bedpans should be warmed before use. An easy way to warm one is to let hot water run over it; the outside should afterward be dried.

To place the bedpan, first flex the patient's knees and push the night gown up. Place one hand under the patient's hips, and instruct her to raise them, assisting as necessary. With the other hand carefully slip the pan into place. If the patient is entirely helpless two persons are needed to lift her.

Before removing the pan, bring toilet paper, basin and warm water, soap and two pieces of soft old muslin. A patient, if able, prefers to use the toilet paper without assistance. Her hands should afterwards be thoroughly washed always. In some cases, however the attendant must do everything needed. After

the patient has been cleaned as thoroughly as possible with paper, raise her hips with one hand and remove the pan. It is important to raise her first because the skin often adheres and may be injured if the pan is suddenly pulled away. Carelessness in managing the bedpan is a frequent cause of bed sores. Remove the pan and cover at once. Turn the patient, if helpless, on her side, and wash the parts with one piece of old muslin. Thoroughly dry them with the other, and either burn or thoroughly wash and boil both pieces afterward.

Cleansing the Bedpan.—Empty the bedpan and clean it at once. Ordinarily one can clean it without wetting or soiling the hands. Use cold water first, removing all adhering solid particles with a tightly rolled piece of toilet paper. Do not use a brush for this purpose. After using cold water, rinse the pan thoroughly in hot water, and at least once a day wash it well in hot soapsuds. Directions for disinfecting the pan will be given later, but remember that a properly kept pan needs no deodorant solution. Urinals should be provided for men, and kept clean in the same way. Contents of both bedpan and urinal should always be carefully inspected; neither should be emptied in the dark.

THE CLEANSING ENEMA

An injection of a fluid into the rectum is called an enema. (Plural, enemas, or enemata). Enemas are generally used to cause prompt evacuation of the bowels. They are frequently necessary in case of illness and are perhaps occasionally advisable at other times, more particularly for babies. For a simple purgative enema one of the following is generally used: water

made soapy with mild white soap, such as castile or ivory; solution of common salt in the proportion of one teaspoonful of salt to one pint of water; plain water. Unless otherwise ordered, the temperature of the enema should be about 105° F.

Method of Giving a Simple Cleansing Enema.—

To give an enema, one should proceed as follows: First protect the bed by placing under the patient's hips a rubber sheet or substitute covered by a draw sheet or large towel. Let the patient lie on the left side unless otherwise ordered, with the knees flexed and head low. Cover the upper part of the body with a folded blanket and draw the hips near to the side of the bed at which the attendant is working. Bring to the bedside a commode or bedpan and lastly the warm solution contained in an irrigating can or a fountain syringe having a long rubber tube, a stop-cock and a short, hard rubber nozzle. The bag of the syringe may be hung on the bed post or elsewhere, but it should not be more than three feet at most above the patient's head. Lubricate the nozzle with vaseline either from a tube, or removed from a jar by means of a piece of toilet paper. Never dip the nozzle itself into a vaseline jar. Let the solution flow into the bedpan until it runs warm and smoothly. A jerky flow means presence of air bubbles which cause pain if injected into the bowels. Unless the patient is able to do it herself, gently insert the nozzle, and at the same time start the flow.

The nozzle must be inserted without force and only the length of the hard rubber part. The flow should also be gentle, since the patient may be unable to retain the solution if it enters too rapidly. If there is a desire to expel the enema as soon as the injection has

begun, shut off the current and wait a minute, meanwhile making pressure with a folded towel against the anus or pressing the buttocks tightly together. Encourage the patient to relax the abdominal muscles. The bag may then be lowered a little and the flow again started very gently. A grown person should take from one to two quarts and a child much less according to the age.

After the enema is finished, give the bedpan immediately, however encouraging the patient to retain the injection for at least five minutes. If retained for this time, it will be much more effective. The bedpan should be given and removed according to directions on page 214. Sometimes an enema is expelled with such violence as to soil the upper sheet. To protect against this possibility, a rubber sheet, oilcloth or newspaper pad may be brought up from under the front of the bed pan against the back of the legs, well to the bend of the knee. A sheet folded in three-cornered shape and placed under the bed pan is useful for this same purpose, especially for children. Gather up one corner from between the legs, and one from each side, pinning loosely with a safety pin in the three-cornered diaper method formerly used. Since an enema sometimes causes nausea or faintness, a patient's condition should be carefully watched during the process.

Method of Giving an Enema to a Baby.---To give an enema to a baby one may use a small syringe having a soft rubber bulb with a nozzle directly attached, or the ordinary fountain syringe with the small, hard rubber tip designed for infants. The enema should be given in a warm room, free from drafts, and the baby must be warmly covered throughout the process.

First cover the lap or table with a pad or folded blanket, protected by a rubber sheet (or newspaper pad) and a diaper. Everything must be ready, the nozzle of the syringe lubricated, a small vessel conveniently placed at the right hand, adequate protection provided, warm water for cleansing and clear water for the enema itself at hand. The baby is then placed so that he lies on his back, with head to the left of attendant. Hold up the feet and legs firmly, with left hand. Be sure that all air is expelled from the syringe and then proceed with care as already directed. In giving an enema to a baby or a small child the flow should always be gentle. A baby will take two or three ounces or perhaps more, according to age. The amount given to an older child will also vary of course with age. After the injection, immediately place the small vessel under the baby's hips and hold the child well supported and well covered until the fluid has been expelled. Since a baby is particularly likely to expel an enema with much force, it is well to provide adequate protection.

Cleansing and Care of Equipment.—After use, the nozzle of a fountain syringe should be washed with soap and water, boiled, dried, and put away with the rest of the enema equipment. Inserting the nozzle into the bag of the syringe immediately after withdrawing it from the rectum is a filthy but not uncommon practice. The syringe bag and tubing should be kept clean inside and out. It should be washed in hot soapsuds, rinsed in clear hot water, drained, and when thoroughly dry, wrapped with all its parts in a clean towel or tissue paper. The ordinary fountain syringe hanging on a hook in the bathroom is an unpleasant and generally an unclean object. The soft

rubber bulb syringe used for the baby should also be promptly and thoroughly cleaned. Care should be taken that all water is expelled before it is put away.

QUESTIONS AND EXERCISES

1. Demonstrate the methods of giving support and comfort to a weak patient: lying flat in bed; lying on the side; a convalescent patient sitting up in bed.

2. Show methods of removing the weight of covers from sensitive parts.

3. Demonstrate methods of improvising bed tables.

4. What means are useful for keeping the skin in good condition?

5. What may be done to shift the weight from the bony prominences of the body?

6. What are some of the causes of bed sores? How may they be prevented?

7. Show the care of the bedpan.

8. Show the preparation of equipment and of patient for a cleansing enema.

9. Show the cleansing and care of equipment used for giving an enema.

FOR FURTHER READING

Home Care of the Sick: "When Mother Does the Nursing"—Clara D. Noyes (National Health Series).

Personal Hygiene and Home Nursing—Louisa C. Lippitt.

CHAPTER XII

APPLICATION OF HEAT, COLD AND COUNTER-IRRITANTS

INFLAMMATION

A process called inflammation sometimes occurs in tissues that have been injured or invaded by bacteria. Although painful, inflammation is nevertheless one of the repair processes of the body, and therefore it is necessary in order that the diseased condition may be removed.

Whenever inflammation shows itself, it denotes that the body forces are attempting to overcome some adverse condition. How serious this condition may be, or how dangerous it may become, it is difficult many times in the beginning to foresee. Therefore, in all cases of inflammation, from the very outset, careful attention should be given and every precaution used to prevent serious complication. In cases of the slightest doubt, the physician should be consulted and consulted at once. Too frequently neglect even of a slight scratch or a pin prick has allowed the development of that serious condition commonly known as "blood poison." Common examples of inflammation are boils, sore throat, infected wounds, and the swollen painful condition resulting from sprains and fractures. Characteristic symptoms of inflammation are heat, redness, swelling and pain.

When a tissue has been invaded by bacteria, near by blood vessels dilate, thus bringing an increased

supply of blood to the affected part. This extra supply serves to wash away the offending substance, and at the same time it brings more white blood corpuscles, one function of which is to destroy bacteria. From the increased supply of blood the affected part becomes red and hot, and so much blood may come that the vessels further on are unable to carry it away fast enough. Some of the fluid part of the blood is then forced out into the tissues, and the part

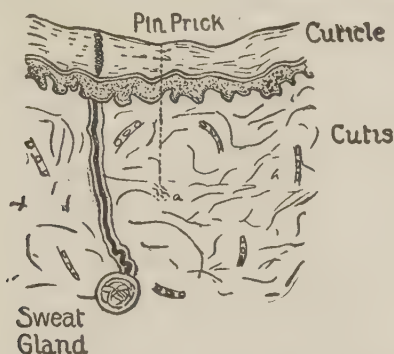


FIG. 25.—“The history of a boil.” This figure represents a cross-section of normal skin. Note the surface layer, or cuticle, and the “true skin,” or cutis. In the cutis one sees that the blood capillaries are just wide enough for the blood-cells to pass through “in single file.” The skin has just been pricked by a dirty pin. On the point of this pin were several poisonous germs which were deposited at *a*. (From Emerson’s “*Essentials of Medicine*.”)

becomes swollen. Distention of the tissues and pressure on the nerve endings cause pain, and the injured part now exhibits the characteristic symptoms of inflammation.

At this point, if the injury begins to heal or the bacterial infection to yield, the extra blood supply is gradually carried off, the blood vessels resume their normal size, and the tissues return to their usual condition. If however the infection does not yield

so quickly, more and more white blood corpuscles assemble and pass through the walls of the tiny blood vessels into the tissues. Here the struggle continues. Some bacteria and some white blood corpuscles are killed, and substances are formed which liquify these dead cells and also some cells of the surrounding tissues. The resulting fluid is called pus or matter, and in the case of a boil we then say it has come to a head. If the infection occurs near a cavity or near the surface of the body, the pus may escape



FIG. 26.—“The history of a boil” (continued). The poison from these germs diffuses through the cutis. The capillaries dilate. The leucocytes force their way through the walls of the capillaries and travel towards these germs. Note the dumb-bell shape of the leucocytes as they pass through the minute holes in the capillary walls, and their pseudopods as they travel towards their common destination, attracted by the poison from the germs. The skin in this region is now swollen, red, hot and painful. (From Emerson's “*Essentials of Medicine*.”)

by breaking through at the point of least resistance, and may carry most of the poisons along with it. If the pus finds no outlet it may be gradually absorbed by the blood stream, and healing may result without discharging. On the other hand, the germs may make their way into the circulation, thus causing the serious condition previously mentioned known as blood poisoning.

Measures for Relief of Inflammation.—Inflammation may be relieved by means of hot applications, cold applications, or counter-irritants. The effect of *heat* is to dilate the vessels and hence to increase the flow of blood to the injured part. This increased blood supply makes the repair process go on more vigorously and also makes it possible for the accumulated fluid to be more rapidly carried away. Moist heat softens the tissues so that pus, if formed, can escape more easily.



FIG. 27.—“The history of a boil” (continued). The migration of leucocytes has continued until now they form a dense mass surrounding the germs. The poison of the germs has killed all the leucocytes and also all the cutis immediately around them, and now digestive fluids from the dead leucocytes is turning the whole dead mass into liquid pus. The boil has “come to a head.” There is a little lump on the skin and through its thin covering of cuticle can be seen the yellow pus. (*From Emerson’s “Essentials of Medicine.”*)

Cold acts in just the opposite way. It decreases the size of the blood vessels so that less blood comes to cause pain and swelling. At the same time it diminishes the number of white blood corpuscles and the nutritive substance brought by the blood. The physician will advise whether heat or cold is to be

preferred, since this decision depends largely upon the nature and the location of the infection.

Counter irritants of which mustard is an example have a complicated action. A counter irritant stimulates the superficial nerves and affects the blood supply of the place to which it is applied. Through the means of the intricate nervous process called reflex action, a counter irritant also brings about changes in the blood supply of another perhaps distant part of the body.



FIG. 28.—“The history of a boil” (concluded). The boil has finally ruptured. The liquid pus has escaped, carrying with it the germs and most of their poisons; the migration of leucocytes has stopped; the capillaries are returning to normal size and now new tissue will grow and fill up this hole. (From Emerson's “*Essentials of Medicine*.”)

HOT APPLICATIONS

In applying either moist or dry heat the danger of burning or scalding a patient must be constantly kept in mind. This danger is always great, but it is especially great when the skin is tender like that of babies, children and old people, or when the vitality is low as in cases of chronic or exhausting illness. Unfortunately, accidents in applying heat are not

uncommon; a moment's carelessness may cause serious injury and prolonged suffering.

Dry Heat. Hot water bottles or bags of either rubber or metal are commonly used to apply dry heat. The metal bottle may be more convenient for ordinary



FIG. 29.—1, Method of filling hot water bag from pitcher.

use, such as keeping the feet warm, since it retains heat somewhat longer. The rubber bag is lighter in weight and conforms to the lines of the body; hence it is more comfortable for parts other than the feet. Either may first be warmed with hot water which is then turned out. The rubber bag should be filled

not more than two-thirds full, with hot water the temperature of which has previously been carefully tested in a pitcher. The water must be of such a temperature that there is not the slightest possibility of scalding the patient if the bag should leak. Boiling



FIG. 29.—2, Expelling air by squeezing the bag toward the top.

water should never be used, nor should a bottle be filled directly from the hot water faucet or teakettle. Before the stopper is screwed on, expel the air by squeezing the rubber bag or by resting it upon a flat surface until the water reaches the top. After closing the bag make sure that both bag, stopper and rubber

washer are in order, by noting whether leakage occurs when the bag is inverted. Before it is placed near the patient, the bag should be dried and entirely covered with a towel or a cotton flannel bag.

Strong bottles, jugs and jars, if they can be securely stoppered, may be used sometimes instead of hot water bags. The same precautions are necessary. Bricks, flat irons or thick flannel bags containing salt or sand may be heated in the oven and used in the same way. The heat of such articles as bricks and irons must always be carefully tested and they should be wrapped with especial care. Salt and sand retain heat for a long time, but are correspondingly slow to heat. Therefore one bag should be heating in the oven while the other is in use. Their effect on the skin must be no less carefully watched than the effects of other hot applications.

Small hot blankets or hot dry flannel may yield sufficient warmth to relieve pain, particularly abdominal pain of babies. After flannel has been heated on a radiator or a warm open oven, it should be tested on the bare arm. It may then be applied quickly but carefully and covered closely with another flannel to prevent escape of heat.

Dry heat can be applied conveniently by an electric pad. The part of the body to be heated may be wrapped in flannel or the pad may be placed next to the skin. The insulating covering of the wires must be entirely intact to avoid any danger of short circuit and it is most important that the pad be kept entirely dry. Electric pads as now made are equipped with an attachment which automatically turns off the heat in case it becomes too great. In using pads of older make which may not have this automatic attachment,

the switch should be carefully watched to see that it is not accidentally turned and so too great a degree of heat produced.

The use of this as of any other device for the application of heat should be carefully watched in order to safeguard against any possibility of accident and burning.

Moist Heat.—Moist heat is applied chiefly through the use of stupes (fomentations) and poultices.

Stupes or hot fomentations are thickly folded clothes, preferably of flannel, or flannelette, wrung out of boiling water and applied to the skin. The folded cloth should be somewhat larger than the area to be covered. Two are needed, so that one may be prepared before removing the other. To prevent escape of heat and moisture the stupe should be covered after it has been applied, first with a piece of rubber cloth or thicknesses of oiled paper and next with several thicknesses of flannel, or with cotton batting made into a pad. The whole should be kept in place with a bandage or towel applied not too tightly. The doctor will tell how often the stupes are to be applied, but if the skin becomes irritated, they must be stopped and the condition reported to the physician.

Great care must be taken in applying fomentations. They do little good unless hot, but if applied too hot the patient is likely to be scalded. Because of the danger of burning, they must be wrung as dry as possible.

It is difficult to wring hot stupes without scalding the hands unless stupe wringers are used. Stupe wringers are heavy pieces of cloth, like roller towels or pieces of ticking, long enough to extend over

opposite sides of the basin in which the stupe is to be boiled, and wide enough to hold the stupe easily. The wringer should be placed in the basin with the stupe arranged upon it. Boiling water should then be added, or the water, stupe and wringer may be boiled together in the basin. After the stupe is ready, the wringer with the stupe upon it should be removed from the water by grasping the dry ends of the wringer. Then the ends should be twisted in opposite directions until the stupe inside is as dry as possible. Wringing is made easier if the wringer has wide hems into which sticks, such as pieces of broom handles, are inserted. By twisting the sticks in opposite directions the stupe may be wrung out easily.

A stupe should be applied with much care. After allowing some of the hot steam to escape, place the hot application gently on the prescribed area, lifting it once or twice until the patient becomes accustomed to the heat and can endure it.

Poultices are sometimes thought to afford a useful form of moist heat. When ordered by the physician, they may easily be made in the home. Various heat retaining substances, such as flaxseed meal, cornmeal, or almost any kind of thick, cooked cereal or starchy material, are used. The poultice when ready should be applied without delay, therefore all preparations should be made in advance. To prepare a poultice, first provide a piece of gauze or thin, old muslin about two inches wider than you wish the poultice to be when finished, and about two inches more than twice as long. In a shallow saucepan boil water, varying in amount according to the size of the poultice desired; about equal parts of water and meal will be needed. When the water is boiling briskly, add the meal gradu-

ally, beating constantly. The poultice is done when the mixture holds together and is thick enough to drop from a spoon or a spatula, leaving it clean. Quickly spread a layer of the hot flaxseed mixture from a half to three-fourths of an inch thick on one-half of the muslin, leaving a margin of about an inch and a half on three sides (Fig. 30). Fold in the margins of the cloth, (Fig. 31), and then bring the other

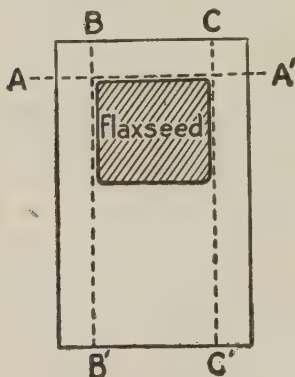


FIG. 30.

FIG. 30.—Turn the edges of the muslin over the flaxseed by folding first on the line AA' , and then on the lines BB' and CC' .

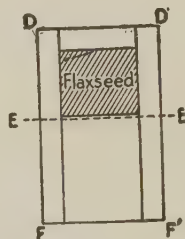


FIG. 31.

FIG. 31.—Fold on the line EE' , bringing FF' up over the flaxseed and tucking it under at D and D' .

half of the cloth over the poultice so that the top surface is also covered. Tuck the free edges of the upper half of the cloth over the turned-in edges of the lower cloth. Turn cold water immediately into the saucepan used to mix the poultice and place the spoon or any other utensil used in it to soak.

Carry the poultice between hot plates. Test it carefully with the back of the hand, and apply it to the skin gradually. When assured that the patient can endure the heat, cover the poultice with thicknesses

of oiled paper, several thicknesses of flannel, and keep all in place with a bandage or towel. Remove the poultice before it has become cool and, unless the skin is much reddened, apply another if ordered. If the skin is considerably reddened, apply vaseline or sweet oil, cover warmly and report to the physician.

COLD APPLICATIONS

Dry Cold.—Cold, like heat, may be used either dry or moist. Bags of rubber are filled with small pieces of ice and used to apply dry cold. When weight is to be avoided, the bag should not be completely filled. After the bag has been filled and the air has been expelled, it should be stoppered securely and wrapped in a towel or piece of flannel, since it is possible for an uncovered ice bag to freeze the skin. Ice bags are easily punctured, and care should be taken not to bring pressure upon them especially when filled with sharp pieces of ice. An ice bag not in use should be thoroughly dry inside and out. It should be put away with tissue paper or a piece of clean cloth inside to keep the surfaces from adhering.

Moist Cold.—*Cold compresses for the head* are often used for patients with fever or headache. They sometimes quiet a restless patient. An old handkerchief or piece of soft linen folded with the raw edges inside may be used as a compress. It should be large enough to cover the forehead, coming down over the temples and eyes. Two compresses at least should be provided, and a large piece of ice in a basin. One compress should be wrung so that it will not drip, and then applied to the head. The other meanwhile should be placed on the ice to cool. Before the first

compress becomes warm, the second should be applied in its place.

Cold Compresses for the Eyes.—Soft cloth or absorbent cotton should be used for eye compresses. Fold several thicknesses of cloth and cut in squares or triangles a little larger than the eye. Place a block of ice in a collander or a strainer within a bowl, or place the ice on a piece of cheesecloth tied over a bowl. Lay the compresses on the ice so that they may be very cold. Apply to the eye and change frequently. The fingers need not touch the side of the compress which will be next to the eye.

A physician should be called in immediately if there is discharge from the eye. In fact in any case of much inflammation or of continued inflammation, medical advice is necessary. When there is discharge from the eye, each compress should be used but once. When removed, it should be dropped into a paper bag ready to be burned. Separate compresses for each eye are always to be used if both eyes are being treated, and each compress used only once. During the treatment it is highly important that the attendant keep her hands away from her own face and eyes. Afterward, the attendant's hands should be washed thoroughly. Definite directions in regard to changing compresses and the length of time the applications should be continued are generally given by the physician.

COUNTER IRRITANTS

To some extent all hot applications are forms of counter-irritation. However, mustard paste, mustard leaves, the mustard foot-bath already described, and iodine are counter-irritants commonly used.

Mustard Paste.—Mustard plasters may be bought already prepared, or a mustard paste may be prepared in the home. To make a mustard paste, mix dry mustard and flour, using for adults one part of mustard and six of flour to make a weak paste. Increase the proportion of mustard up to equal parts of mustard and flour, according to the strength required. Use a smaller proportion of mustard for children. One part of mustard with from 6 to 10 parts of flour is generally enough. Add to the mixed mustard and flour enough cool water to make a paste, which must be entirely free from lumps. Only cool water must be used since hot water causes the oil, which is the active property of mustard, to be lost. Spread the paste on thin muslin, one-half of which is folded over to cover the other side. Before applying the paste, oil the skin with any bland oil or ointment, especially if it seems sensitive. This will make it less likely to blister. Remove as soon as the skin is reddened so that its color resembles a moderate sunburn.

Mustard Leaves.—Mustard leaves should be dipped in tepid water and may then be applied to the skin directly, but if specially sensitive, the skin should be protected by thin muslin or gauze or oiled. The leaf should remain until the skin shows a rosy glow. A few minutes are generally sufficient.

Care must be taken not to leave either a mustard leaf or a paste in place long enough to blister the skin. After the application has been removed, the part should be protected by a soft cloth until redness disappears. Vaseline or sweet oil should be applied to the skin if it is greatly irritated.

Other Counter-irritants.—Other counter-irritants in common use are iodine, camphorated oil, capsicum

vaseline, turpentine, kerosene, and various liniments. Tincture of iodine may be diluted with alcohol for especially sensitive skins. It sometimes causes blisters, and should not be applied more than once a day at most. Turpentine causes blisters. It should not be used as a counter-irritant except by a doctor's order, and then only after exact directions have been obtained. Turpentine and kerosene are inflammable and hence dangerous to use. It should be remembered that the action of all counter-irritants is physiologically the same, so that no advantage is obtained from the use of dangerous substances like kerosene and turpentine.

QUESTIONS AND EXERCISES

1. What are the symptoms of inflammation?
2. Why is prompt care necessary in any case of inflammation?
3. Give a brief "history" of the process of inflammation.
4. What may be done for the relief of inflammation?
5. Name common methods of applying dry heat. Moist heat.
6. Show method of filling, covering, and applying an ice cap.
7. How should a hot water bottle be cared for?
8. Show use of salt bag, hot flannel, electric pad.
9. What are the dangers from hot applications and how may they be guarded against in the use of each form?
10. Show the preparation and application of hot fomentation. A flaxseed poultice.
11. Show how to improvise a stupe wringer in the home.
12. Show after care of an ice cap.
13. Show the method of applying cold compresses to the head. To the eyes.
14. Why is such particular care necessary in dealing in any way with the eyes?
15. Show the method of making and applying a mustard paste.
16. Show the use of iodine as a counter-irritant.

FOR FURTHER READING

Personal Hygiene and Home Nursing—Louisa C. Lippitt.
The Human Mechanism—T. Hough and W. T. Sedgwick.

CHAPTER XIII

MEDICINES AND OTHER REMEDIES

Modern practice increasingly emphasizes diet, baths, rest, exercise, and other hygienic measures for the correction of sickness. Drugs are given far less than they were a generation ago. However, it is usually considered necessary that the home should have a few standard remedies together with certain appliances for their use. There are also required a few emergency first aid supplies and some appliances for the care and comfort of the sick.

The Household Medicine Cabinet.—For the care of the necessities included under the above classification, every household should be provided with a *medicine cabinet*, which may be small or large according to the need of the family. Glass shelves are desirable because they show when dirty and are easily cleaned, but a wooden cupboard painted and enameled white is quite suitable. Such shelves may be covered with white paper or white oilcloth and thus more easily kept clean. The cupboard should be kept locked and the key put well out of the reach of children. Any medicines used in the family should at all times be kept in the medicine cupboard, not on the sideboard or dressing table.

The location of this cabinet is important. The bathroom, since it is readily accessible to all parts of the house, and since it has also other points of desirability, is a convenient and usually a favored situation.

Occasionally, especially when the medicine cabinet is located in the bath room, *toilet articles* are kept in it. This may be an unsafe practice, especially if there are children or elderly people with poor eyesight in the family. The mechanical use of these daily necessities may lead to less care in the giving of the medicines with which they are thus so intimately associated. Also, there is always the possibility of confusing two totally different articles. If the same cabinet is to be used for both medical supplies and toilet articles, let one entire shelf, probably the lower, be devoted to the toilet necessities and the rest to the medicines. Cultivate a habit of never interchanging or mingling the articles. Perhaps a better plan, where it can be arranged, would be to have one door with lock for the upper shelves to be used only for medicines, and a separate door for the lower shelf containing the articles for toilet use. Safety is the first consideration. Therefore with this principle in mind, some plan safe for all concerned should be worked out to fit the individual home.

Care of Medicines.—A few simple principles in regard to the proper care of medicines should be understood and applied in every home. Usually it is more economical to keep medicines and supplies in only small quantities and to renew these as frequently as needed. When it seems cheaper to buy in larger amounts, the druggist will gladly advise as to the approximate length of time the article may be kept without danger of deterioration. Even pills and tablets which would seem to be least subject to change by standing, may become so hard that they pass through the stomach and intestines without dissolving. It is necessary that all bottles be kept well corked,

since evaporation may take place and the remaining solution, by becoming stronger, may be dangerous to use in the ordinary amount. Glass or rubber stoppers are needed for some commonly used substances which eat through ordinary corks and are thus soon exposed to the air. Every medicine should be plainly labeled.

General Rules.—The following general rules should be observed in planning the home medicine cabinet.

1. Keep on hand only those medical supplies for which there is frequent use or for which there is a strong probability of need in emergency.

2. Consult the physician in regard to selection of standard remedies best adapted to the need of the individual family in any given location, and follow his directions in their use.

3. Buy these supplies in as small quantities as may be consistent with need and with economy and tendency to deteriorate. (To those who live at a distance from drug stores it may be advantageous to keep on hand a greater variety of medicines as well as a larger quantity of some.)

4. Plan a system for keeping them by which they may be always safe, always ready, always clean.

5. Try to reduce the present minimum of medical needs by following strictly the physician's advice and by simple, correct living.

CONTENTS OF THE MEDICINE CABINET

Cathartics and Laxatives.—Among the drugs in daily use in the average household, first consideration may be given to a few standard cathartics and laxatives. Cathartics are those active agents sometimes needed for rapid emptying of the bowel. *Castor oil*

is commonly used for this purpose. It is one of the most effective and one of the safest cathartics for such use. *Epsom salts* is also frequently used for quick action. Epsom salts in smaller doses, or *Rochelle salts*, which is more pleasant to take, may be used for a milder laxative action. *Cascara sagrada* tablets, or any advised mild laxative may be kept for occasional use.

Stimulants.—A safe and effective stimulant should be at hand for use in such conditions as fainting or exhaustion. *Aromatic spirits of ammonia* is especially well adapted for this purpose. The inhalation of aromatic spirits of ammonia or of smelling salts constitutes one of the simplest methods of stimulating a person totally unconscious. Pour a small amount of the aromatic spirits on a cloth and hold close to the patient's nose in such a way as not to interfere with the free breathing of air. If the patient is conscious and able to swallow, one-half to one teaspoonful of aromatic spirits of ammonia in a quarter to a half-glass of water may be given internally. A cup of hot black coffee is an especially valuable stimulant in some instances, though its preparation takes longer. Hot tea or even hot water is sometimes used.

Miscellaneous Remedies.—For relief of the common forms of indigestion, *baking soda* (sodium bicarbonate) is usually effective. With it may be used *essence of peppermint* which is useful in case of stomach or intestinal cramps, especially when these are due to gas.

To produce vomiting, *mustard* may be taken internally, one quarter teaspoonful to a glass of warm water. Mustard is also valuable as a counter irritant which use is explained in Chapter XII.

As a bland and soothing application to irritated surfaces and as a nutrient, *olive oil* is valuable either internally or externally.

The above named miscellaneous remedies are usually available in any household. They may, if found more convenient, be kept properly covered and labeled in the medicine cabinet.

Disinfectants.—One or two safe disinfectants should be kept. *Iodine*, is perhaps the most useful disinfectant for small cuts and shallow skin wounds. It evaporates readily, thus unless carefully corked, soon becoming too strong. A rubber or glass stopper should be used. Iodine is a poison and as such should be safeguarded in every way. It should be kept in a colored, rough-surfaced bottle with a prominent "Poison" label. In addition, it should be kept away from younger members of the family, probably on the top shelf of the locked medicine cabinet.

Iodine, to be effective, should be applied promptly. It may be lightly painted over the surface of the wound and over the surrounding skin with a clean cotton swab. However, it must be used carefully, since repeated application of iodine will cause severe inflammation.

Boric acid powder is used to make a mild antiseptic solution suitable for the eyes or mouth. It should be made fresh, usually one teaspoonful to a pint of water. Water and bottle should be previously boiled in order to render them sterile or free from disease producing germs.

Rubbing alcohol is sometimes found useful as a disinfectant, and as the name indicates, for rubbing the skin as in the case of a person in bed for a considerable length of time. This is a denatured alcohol, a grain

alcohol containing some poisonous substance irritating to the stomach and intestines which prohibits its use internally but which in no way interferes with its use for rubbing or other external purposes. In about 50 per cent to 60 per cent solution, it may be used as a disinfectant for the skin or for small instruments.¹

Ointments.—One or two simple ointments are usually desired. A tube of plain *vaseline* will be used for various purposes, such as slight burns or blisters, prevention of hangnails, or lubrication of an enema point. Ointments in tubes are more easily kept clean, but if a jar is preferred, the contents may be kept uncontaminated by removing always with a clean spoon-handle, or a knife or a folded piece of toilet paper. *Boracic ointment* and other similar materials are harmless and sometimes desirable.

Poisonous Drugs.—With reference to the drug contents of the medicine cabinet, safety demands that the care and use of poisonous materials in the home be most carefully considered. In the first place, no poisons should be kept in the home unless they are absolutely necessary; unless no harmless substitute can be found; or unless the physician orders them. When kept, they should be in rough-surfaced bottles of conspicuous color, with prominent "Poison" labels. A device sometimes used in the home is the placing of a band or two of rubber or of adhesive tape around a bottle of poison, so that in addition to all other markings this too will attract the attention and will call for caution. For additional safeguarding,

¹ *Wood alcohol* is extremely poisonous for either internal or external use. Even its fumes are dangerous to inhale. It has absolutely no place in the home. In fact, only with the greatest care should it be kept in the home for any purpose whatever, because of the great dangers associated with it, to eyesight and even to life.

poisons should be placed far back on the top shelf of the medicine cabinet. In the list of standard remedies just given, only one poison is included—iodine. The safeguards mentioned should be rigidly observed in regard to it. Also, its proper use and its dangers should be thoroughly understood by every person who will have access to it.

It may be well to mention here that the use or even the keeping in the home of such violent poisons as carbolic acid, bichloride of mercury and concentrated lye is not only unnecessary but exceedingly dangerous.

Prompt Disposal of Unused Medicines.—Since only reasonably fresh solutions of most medicines can be depended upon as effective and safe, the prompt disposal of all preparations no longer in use is necessary. It is a safeguard. It is economical.

Under no circumstances should medicine prescribed for one person be taken by another. This rule seems obvious enough. Yet every day people pass on their pet remedies to friends. Some medicines deteriorate after standing, and others grow stronger. Nevertheless, medicine supposed to have cured a cough, or a tonic supposed to have strengthened some member of the family after an attack of grippe, is cheerfully administered months later to another member of the family, who, to make matters worse, may differ in age, strength, and probably in the nature of his sickness. Drugs are expensive, and it is considered economical to use them up. Measured by lost time and impaired health such practices may be anything but thrifty. The manner of the disposal of drugs is also a matter of importance. Liquids or powders may be emptied into the toilet, as may also any easily dissolved tablets or pills. These substances, which may in certain

amounts be injurious, should be kept out of garbage, ash cans and other similar forms of household waste. The bottle should be immediately and thoroughly washed and the labels removed.

First Aid Materials.—Only a few first aid materials may be kept in the medicine cabinet. Any reserve supplies needed may be placed well wrapped, labeled and protected from dust in some other convenient place. Of sterile supplies to cover a cut or wound, we need usually only a small amount at any one time, for these quickly become contaminated and therefore non-sterile after having been opened. In most homes, perhaps one small, sealed package of sterile gauze and one or two sealed, two-inch bandages are sufficient.

Materials are needed also to hold in place the sterile dressing on a wound. The two-inch bandages mentioned above are used for this purpose. Other similar bandages of assorted widths may be bought or may be made from freshly laundered home materials, such as old linen or thin muslin. Two triangular bandages made by cutting a yard square of strong cloth diagonally in two are convenient. Bandages may be fastened most securely by use of small safety pins, by tying with the cloth of the bandage itself, or perhaps by the use of adhesive tape. Like these other materials for securing bandages adhesive tape is not a sterile material and should not be placed directly upon an open wound.

Absorbent cotton is often needed for swabs, used as in applying iodine. The cotton may be bought in a small, sealed package. Some swabs made from cotton wound on a toothpick should be kept ready in a small covered jar.

Blunt scissors should also be placed with the first aid materials.

Household First Aid Chests and various types and sizes of First Aid Kits are prepared by the First Aid Service of the American Red Cross. These are planned to meet many special needs, such as the emergencies arising in the household, the school or the garage, or during all-day hikes, motor or camping trips, and they may be purchased in the convenient form already assembled.

Miscellaneous Appliances.—Certain small appliances required for various purposes may also have a place in the medicine cabinet. Those which will be needed together should be grouped together, thus convenient and ready for use. After use, these should always be returned in proper condition to the regular place. There will be need for a flash light, a candle in its candlestick, a box of safety matches, a covered jar or can for burnt matches, and canned heat with stand and fireproof base (asbestos mat). If gas is available, canned heat in many homes will be unnecessary. In the medicine cabinet is kept the mouth thermometer in its case, together with the materials necessary for its cleansing. For this purpose castile soap and a covered jar of absorbent cotton or small squares of clean cloth for scrubbing will usually be sufficient. Wooden toothpicks for swabs are needed. The utensils for giving medicines should include a teaspoon of standard size, a medicine glass marked to indicate usual measures, a medicine dropper and a drinking glass. These appliances frequently used will probably be most conveniently placed on one of the lower shelves of the cabinet.

Larger Appliances.—There are other appliances which our minds associate with the medicine cabinet but which are ordinarily too large to be placed in it.

For these, too, a certain place should be planned so that they may be quickly found at night or in case of immediate need. The available location will vary in different homes. Convenient places may be a large built-in drawer, or one of a chest of drawers within the bath room, a drawer or shelf of the linen closet in the hall just outside of the bath room, or a lower drawer of a chiffonier or bureau in an adjoining bed room. In the place selected may be kept such articles as the hot water bag, either metal or rubber, with stopper and cover; a fountain syringe with its attachments; perhaps an electric pad with cord and plug. Here, too, in a clean box may be kept clean, soft linen and cotton cloth, squares of old, soft flannel, and perhaps an extra supply of absorbent cotton—well wrapped. Plain labels and a list of all the contents are a convenience here as well as in the medicine closet.

Care of Rubber Goods.—Since rubber goods deteriorate rapidly, special care should be given them. Also only those articles really needed should be bought. Entirely clean and dry, with stopper and washer in good condition and with the needed cover, such an article may be placed in a box or wrapped flat in clean paper or a towel. Necessarily, appliances wrapped or in boxes must be labeled on the outside so that any person might quickly know the contents.

The Proper Use of Medicines.—The medicine cabinet and its contents are for use—proper use. In order that it may be used properly, the preceding safeguarding suggestions in regard to care, order, labeling and cleanliness, and also certain special precautions, have been given. As stated before, modern medical practice is emphasizing the use of drugs less and less. However, medicines are still the most

familiar of all remedies and perhaps the most abused by those who persist in treating themselves. Misuse of medicine even by intelligent people is astonishingly common.

Problems of sickness and health would be enormously clarified if the uses and limitations of drugs were more generally understood. Many people still believe that every disease can be cured by a drug if only the doctor is clever or lucky enough to think of the right one to give. Such beliefs result naturally enough from centuries of faith in charms and magic, and occasionally are confirmed by remarkable cures apparently brought about by drugs, but really pure coincidence or the result of suggestion.

It is a fact that a few medicines are known which if rightly used actually do cure certain diseases. An example of their action is the curative effect of quinine in malaria. Such medicines, unfortunately, are few. In the great majority of cases medicines do not cure disease. Their beneficial action is ordinarily indirect and is due to their power either to increase or to check certain processes within the body.

It is here that the abuse of drugs comes in. Disordered bodily processes give rise to symptoms of disease; and it is the symptoms of disease, not the disease itself, that trouble the patient. A patient with typhoid, for example, is not conscious of the toxins in his blood, but of headache, weakness and fever. The man with eyestrain is not aware of an imperfectly shaped lens, but of headache and indigestion. What the patient wants is to have his symptoms relieved. In some cases they can be controlled by drugs, and the sufferer then considers himself cured. However the original condition persists. It may in

the meantime be improving, but on the other hand it may be growing worse.

Not infrequently it is best to check symptoms, and to check them by means of drugs. When they should be checked, only a thoroughly trained physician is qualified to decide. The question is not one for the untrained, since the whole practice of medicine, including the prescription of drugs, constantly becomes more nearly an exact science. People should obtain and follow expert advice in regard to health as they would in regard to other affairs of life. The constant self-dosing practised by thousands of people is harmful and unintelligent. It is, however, no less irrational to go to the other extreme and refuse to take medicine prescribed by a competent doctor.

Amateur Dosing.—Amateur dosing either of oneself or of others is dangerous in more ways than one. In the first place, time is lost. Moreover, symptoms are characteristic; checking or altering them increases the difficulty of finding the real trouble. The man with eyestrain who takes one drug to stop his headache and another to “cure” his stomach, is simply delaying the time when perhaps properly adjusted glasses will relieve both. In this case the result may not be serious; but such a loss of time in finding the trouble and beginning proper treatment might prove fatal in the case of tuberculosis.

Another objection to amateur prescription of medicine is the fact that most drugs have more than one effect. In addition to their main action they have others, subordinate or ordinarily less marked. These minor effects may be serious in some cases. Many headache remedies, for example, affect the heart. A dose that is harmless for a normal person may be

strong enough to injure seriously a person with a weak heart. A doctor, and a doctor only, is competent to decide when and in what quantity medicines will be beneficial, because he alone understands both the condition of the patient and all the possible effects of the drug.

Cathartics, tonics and various drugs to relieve pain and sleeplessness are among the remedies most commonly taken without medical advice. Enough has already been said about constipation to indicate proper hygienic treatment, but another warning should be given against habitual use of cathartics. Many of these drugs are irritating. Even when not irritating, they are harmful, since the body depends more and more upon the drug to do for it that which it should, by the remedying of the original cause of the trouble, be enabled to do for itself. The aim is not to replace the constipation habit by the cathartic habit, but so to strengthen the body that it will properly perform its functions without outside aid or force. To accomplish this purpose, careful following of a program outlined by the physician is frequently necessary for a considerable length of time. For some simple practical suggestions in regard to the overcoming of constipation, see pages 5 to 7.

Tonics are poor substitutes for proper diet, rest and fresh air. Using them may be likened to beating a tired horse; the horse goes faster, but he is not really stronger. In some emergencies the horse must go faster and there is nothing to do but beat him, and in some cases the tonic should be given. These, however, are cases for a doctor to decide. People persist in taking tonics because they are unwilling or unable to rest, or otherwise to change their ways of living.

Medicines to stop pain or to induce sleep are probably the most pernicious of all self-prescribed remedies, for some of them add to other dangers the possibility of forming drug habits. This is especially true of preparations of opium, such as laudanum, morphine and heroin. The effect of these drugs is so insidious that persons who use them may in a short time become addicts without knowing it. Cocaine is another habit-forming drug less insidious but more harmful than opium. No one, no matter how sure of his own self-control, can afford to run so grave a risk as to take opium or cocaine in any form except by a doctor's direction. Chloral hydrate and veronal are types of other sleep-producing drugs that should be avoided because they are very poisonous and may in some persons produce drug habits. Sleep should come naturally and, unless under exceptional circumstances to be determined by a physician, no effort should be made to induce it by drugs.

Patent Remedies.—Objections to self dosing in general apply even more strongly to using patent medicines. The ingredients of patent medicines are ordinarily unknown, so that using them is unintelligent at best. Sometimes these ingredients are innocent enough, but usually they are totally unable to bring about the results claimed for them. There are no secrets in medicine. A physician who discovers a new drug or a new cure is obligated to give it to the whole medical profession for the benefit of humanity. The old story about a powerful remedy discovered by accident and thus unknown to the medical profession deceives only the ignorant or the credulous.

Even to the comparatively harmless patent preparations there are two serious objections. One is the

loss of time, during which the patient may grow worse. The other is that money is obtained under false pretenses; fraud is a common element in the success of patent remedies. One of the least harmful, a substance called "Murine" may be taken as an example.¹ This substance was widely advertised at one time as a "positive cure for sore eyes." Analysis showed it to be a solution of borax, which cost about five cents a gallon to prepare. It sold for one dollar an ounce, or at rate of \$128.00 a gallon. Although it could not bring about the wonderful cures advertised, it was practically harmless, and buyers of "Murine" must have been injured chiefly in pocket. But with "cancer cures" and "consumption cures" it is a different story. Early treatment of these diseases is essential to recovery. Delay in many cases means robbing the sufferer of his only chance of life.

ADMINISTRATION OF MEDICINE

Medicines may be introduced into the body in a number of ways. In the majority of cases they are swallowed and finally carried to the tissues by the blood just as digested food is carried.

Measuring and Giving Medicines.—Medicine should be given to a sick person only in compliance with the doctor's order except perhaps in rare emergencies. The prescribed dose should be accurately measured in a medicine glass having a scale to show the number of teaspoonfuls. When measuring medicine, think only of what you are doing; neither talk nor listen to conversation. First read the label on the bottle. Shake the bottle, if the medicine is liquid, in

¹See "Nostrums and Quackery," second edition, pp. 603-604.

order to mix the contents thoroughly. Remove the cork with the little finger of the right hand, curved, and hold it while pouring, thus keeping the cork clean and protecting the contents of the bottle. Hold the medicine glass on a level with the eyes, and in the other hand hold the bottle, with the side bearing the label uppermost to avoid soiling it. Pour out the dose, measuring exactly, wipe the bottle, replace the cork, and again read the label on the bottle.

Most medicines should be diluted with a little water. Pills and capsules should be presented to patients on a saucer or in a teaspoon, not in the attendant's fingers. Acids and medicines containing iron, when given in liquid form, should be taken through a glass tube kept for medicine exclusively. Tubes and glasses should be washed at once after use and should be immediately returned to their places in the medicine cabinet. If a dose is omitted for any reason, give the regular dose at the next regular time. Do not increase the dose.

It is of vital importance that drugs be given and taken only as ordered, and every safeguard should be used to insure against serious mistakes. Medicine is to be used only from a clearly labeled box or bottle. All unlabeled medicines should be destroyed. If only a few pills or tablets are left by the physician, place them in an envelope with his exact directions as to the dose. Select medicines only under a good light, even though you seem to have positive knowledge that there is no other bottle or box of medicine in the whole house. In just such circumstances, it is well to take extra precaution and to prevent a fatal mistake.

Aids in Making Medicines More Palatable.—A few things can be done to make medicines more palat-

able. The water used to dilute the dose and to be taken after it should be very cold. Holding the nose is helpful. A piece of cracker, a peppermint, or a slice of lemon or orange, if allowed, may be taken afterward. Giving disagreeable medicine in ordinary food, as lemon juice, orange juice or milk, and giving bitter powders in jam or jelly, is unwise because it sometimes results in life long dislike for a useful article of diet. Where food is given directly after the dose to take away its taste, the association of dislike seems to be formed less frequently.

The taste of *castor oil* often causes vomiting, but if skillfully given the oil need not be tasted by a patient who is able to cooperate. Its way of sticking to the tongue and teeth constitutes the chief difficulty. The object therefore is to prevent it from sticking by swallowing the dose all at once. To administer the oil, wet the inside of a medicine glass or large spoon with diluted lemon juice, and leave a little in the bottom. Pour the required dose in slowly and cover it with more lemon juice. Let the patient hold in his hand something to take away the taste,—cracker, bread, peppermint or whatever is allowed. Water is not effectual for castor oil. Pour the dose in quickly, far back, taking care not to spill the last drop on the lips. When castor oil is needed, it is badly needed, and efforts to make it stay down are worth while.

The following method also effectually disguises the taste of castor oil. Prepare as described above using the juice of about half a lemon. Lastly add half a level teaspoonful of baking soda. Mix all together thoroughly and let the patient take the mixture immediately while it is effervescing. This method may be used unless the patient is not allowed soda

and lemon juice. Tasteless castor oil which is much more palatable may be found more practical.

Some mothers have found that children are less disturbed by taking the prescribed dose of castor oil in a small glass of sarsaparilla soda water, as mixed at home or by any near druggist. This, the child usually considers quite palatable. It is particularly desirable that children be taught from the beginning to take as a matter of course any prescribed medicine. Such a habit will usually be more easily developed by preparing the dose in as agreeable a form as is possible.

Sprays and Gargles.—Some remedies may be applied directly to the throat by gargles, and to the nose and throat by sprays. The throat may be cleansed by gargling with a solution of a teaspoonful of baking soda or common salt in a glass of water as warm as may be comfortably borne. The heat is important, since the effectiveness of the treatment is in large part dependent upon it. Nose sprays should be used only under medical direction. Their unadvised use constitutes one of the common causes for middle ear infections and for other troublesome and dangerous infections connected with the nasal passages.

It is well to remember that if the mouth washes, gargles and sprays advertised to be disinfectants were used strong enough to kill germs, they would be too harsh and irritating for common or continued use. The tender membranes lining nose and throat, when thus irritated, are much more likely to become swollen and uncomfortable. They are necessarily therefore in even poorer condition to resist the attack of any disease producing organisms which may be present.

Whenever it is necessary to use nose and throat sprays, their nozzles should afterward immediately

be boiled. A surprising number of families who have progressed far beyond common drinking cups and towels continue to use a common nose spray without even washing the nozzle.

Children, while they are well, should be taught how to gargle the throat. A child with a sore throat and an aching head is in a poor condition to learn anything. Also, at as early an age as possible, children should be taught willingly to open the mouth for the physician's treatment or examination. This is accomplished with ease when the parents take the attitude from the beginning that the doctor is the children's friend.

Inhalation.—Inhalation, or breathing in, is another method used to introduce drugs into the membranes of the nose, throat and lungs. Smelling salts and aromatic spirits of ammonia are examples of substances used for inhalation. They should not be placed close to the nostrils, nor in such a way as to interfere with free breathing of air. Give a whiff and take it away, repeating this procedure as seems necessary.

Inhalations of steam are often used in asthma, croup and bronchitis. Special croup kettles are made for the purpose, but an ordinary pitcher half full of boiling water may be used instead. The patient's head should be held closely over the pitcher, and a towel should be adjusted around the top covering the patient's nose and mouth, but admitting just enough air to make it possible for him to breathe. If a drug is ordered it should be added to the water according to directions.

Steam inhalations are better given at bedtime, unless the patient is already in bed. He will usually show greater susceptibility to cold if he goes out or is exposed to drafts after such a warm treatment, and

he should therefore, stay indoors and be protected as necessary.

Inunction.—Rubbing a substance into the skin, is sometimes ordered for delicate babies and children. After the skin of the part has been washed with warm soapy water and thoroughly dried, the substance ordered, generally olive oil or cod liver oil, should be applied by means of a circular movement of the palm of the hand. The oil should be warm and the rubbing continued until it is absorbed.

Ointments are also applied by inunction. A small quantity at a time should be rubbed in, using a circular motion. If an ointment is ordered to be applied where the skin is broken, the ointment should be spread upon gauze and applied without friction. Liniments are rubbed in in the same way as ointments. In many cases the rubbing accomplishes more than the ointment or liniment itself, so that this part of the treatment must not be slighted.

Suppositories.—Sometimes medicines are given through the rectum—a part of the large intestine or bowel. For this purpose they are combined with cocoa butter or other material, and made into small cones called suppositories. They melt at a low temperature and should be kept on ice until needed. A suppository should be lubricated with vaseline, and inserted very gently as far as the finger can be introduced, while the patient is lying on the back or left side. For immediate emptying of the bowel, the glycerine suppositories used for babies are sometimes advised by the physician. Because of their irritating qualities they should not be used except under his direction.

THE CONTENTS OF THE HOME MEDICINE CABINET

Medicines

Cathartics

Castor oil—8 ounces

Epsom salts—8 ounces

Cascara sagrada—3 grains. 50 Tablets.

Stimulants

Aromatic spirits of ammonia—2 ounces

Miscellaneous

Essence of peppermint—2 ounces

Baking soda—small jar

Common salt—small jar

Disinfectants

Iodine (Poison)—one half ounce

Iodine swabs—one half dozen

Boric acid powder—2 ounces

Rubbing alcohol—8 ounces

Ointments

Vaseline—one tube

First Aid Materials

Sterile gauze—1 package $\frac{1}{4}$ yard, sealed

Bandage—1 package 2-inch, sealed.

Absorbent cotton

Cotton swabs

Safety pins

Blunt scissors

1 package of sterile finger dressings, ARC-6

1 package of sterile small cut dressings, ARC-3

Miscellaneous Appliances

Flash light

Candle in candlestick

Box safety matches

Canned heat—stand and base

Thermometer in case

Castile soap (for cleaning thermometer)

Box wooden toothpicks

Teaspoon (standard size)

Medicine glass

Medicine dropper

Drinking glass

QUESTIONS AND EXERCISES

1. Give points of importance in the care of medicines.
2. Make a list of those things necessary for your own home medicine cabinet.
3. Name several safe stimulants for home use and show the method of their use.
4. Mention several uses of baking soda.
5. What disinfectants are needed in the house? Show their use?
6. Give precautions in regard to keeping of poisons in the home.
7. What should be done with unused medicines?
8. What are the dangers of dosing without a physician's advice?
9. What is meant by the cathartic habit? How may it be overcome?
10. What are the dangers of patent remedies? Of sleep producing medicines?
11. Show how to pour and give aromatic spirits of ammonia; soda; castor oil.
12. Show how to handle a cork so that it will neither become contaminated, nor misplaced.
13. Show the care of a nose spray.
14. Show a simple method of giving an inhalation.
15. How many drugs in addition to those prescribed by a physician have you or your family on hand at the present time? How many do you consider really necessary? Are any of these medicines used to remedy troubles that might be cured by sufficient attention to rest, exercise, diet, and fresh air?

FOR FURTHER READING

Essentials of Medicine—Charles T. Emerson.

Health and Disease—R. I. Lee.

How to Live—I. Fisher and E. L. Fisk.

The Human Mechanism—T. Hough and W. T. Sedgwick.

Nostrums and Quackery—American Medical Association—(See especially "Cancer Cures" and "Consumption Cures").

CHAPTER XIV

FEEDING THE SICK

Careful thought and the application of scientific knowledge in regard to foods are necessary to safeguard the condition of the sick. Each day the patient should have every food really essential in adequate amounts for his condition. The only food constituent which is stored in the body and which may be drawn upon to any extent is fat, perhaps the least important.

The choice of food should be made to meet the needs of the body in building tissue, regulating body processes, promoting growth and health and providing sufficient energy for the activities of the body.

The foods that supply the building substances (protein, mineral salts, and water) are derived chiefly from the animal sources such as milk, eggs, cheese, meat and fish. Many plant foods, such as cereals, beans, peas, fruits and leafy vegetables also furnish tissue building material. Good regulatory foods (water, mineral salts and bulk or cellulose) may be secured in fruits, vegetables, coarse cereals, milk, egg yolk and lean meat. Growth and health foods (vitamins) are milk and milk products, egg yolk, whole cereals, fresh vegetables and fruits. The body may obtain some of its energy from the tissue building foods, but the greater part of its energy is obtained from starches, sugars and fats.

In order to be used by the body for any purpose, the foods must first go through a series of complicated

changes, known as digestion, which renders them soluble so that they can be absorbed through the walls of the stomach and intestines.

The Digestive Process.—Digestion begins in the mouth. There the food is crushed and its fibres separated by the teeth; it is moistened by the saliva; and substances in the saliva begin a chemical action upon the starch. Chewing should be sufficient to reduce the food to a soft mass well moistened with saliva. Slow eating is desirable, but the emphasis should be placed on thorough chewing. For instance, long intervals between bites are of no special benefit if mouthfuls of food are washed down by swallows of water.

After it has been swallowed, the food passes into the stomach and remains there for a variable length of time, while it undergoes further preparation for absorption. It is moved about by the contraction of the muscular walls of the stomach, so that it becomes mixed with the stomach juices and more thoroughly softened. Some digestion of proteids goes on in the stomach, and a little absorption through the walls.

Little by little the food is discharged from the stomach into the small intestine, and the most important part of digestion then begins. It is acted upon chemically by a fluid flowing into the intestine from an organ called the pancreas. This pancreatic juice is of great importance in the digestive process. The bile and other juices that flow into the intestine are also important.

The food masses are moved along by rhythmic contractions of the intestine, and absorption goes on when the food has been so changed that it can soak through the intestinal walls into the blood and lymph

vessels. The small intestine is about 20 feet long, and consequently affords a large surface for absorption, as does also the large intestine, into which the small intestine opens. The blood and lymph carry the digested food substances to all parts of the body, and thus the different tissues are provided with the materials they need for growth, repair and energy. Excess of food substances is stored as fat or expelled from the body.

As the blood and lymph go through the tissues they take from the tissues the refuse, or the part that remains after the fuel substances have been consumed. This refuse from the tissues may be likened to the ashes from a furnace. It is finally eliminated from the body through the kidneys and bowels, and to some extent through the skin and lungs. The part of the food that is not digested of course never soaks through the intestinal walls. It merely passes through the small and large intestines and is finally expelled as feces or bowel movements. The characteristic odor of fecal matter results from the action of bacteria upon it while in the large intestine.

While adequate food is probably one of the largest factors in general well being, the body cannot keep in a state of health through food alone. Regular meals, planned to suit the individual needs and limitations, served in pleasant surroundings and with time enough allowed for thorough mastication, all are essential in feeding the sick.

Experiments have shown that pain, fear, worry and other unpleasant emotions actually stop the action of the digestive juices and check muscular contractions of the small intestine. Furthermore, even the absence of pleasant anticipation of food has been

shown to delay digestion for hours. Thus scientific knowledge confirms our common experience that such mental states seriously interfere with digestion. The converse is also true. Agreeable taste and odor of food, or even pleasurable thought of it, start the secretion of digestive fluids. It is a common saying that the mouth waters at the prospect of inviting food, but it is less well known that appetizing food does actually start the stomach juices also. A person who understands the physiological effect that the emotions have upon digestion is in a far better frame of mind to cope successfully with the difficulties of feeding the sick than one who considers sick persons' likes and dislikes entirely irrational.

Diet for the sick is often a part of medical treatment. In such cases the doctor will prescribe special diets and his orders must be carefully carried out. Except for special diets, food for the sick is for the sake of convenience generally divided into four classes:—liquid or fluid diet, soft diet, light or convalescent diet, full diet.

Liquid Diet.—A liquid diet generally includes milk, either plain or modified in such a way as to make it more digestible, more nutritious or more attractive to the patient; raw eggs in combination with water, milk, fruit juices, cocoa or other fluid; broths and clear soups of various kinds; beef juice and tea; cream soups of various kinds, and cereal gruels.

Soft Diet.—Soft or semi-solid diet includes all fluid food, and in addition, soft milk toast or broth; cream of vegetable soup; soft cooked eggs, custards—baked, steamed or “boiled”; well cooked cereals; junkets, soufflés, blancmange, gelatin jellies, ice creams, ices and sherberts. Meat and fish are omitted and green vegetables given with caution, usually in soup. Soft

diet is generally more acceptable to the patient than a whole fluid diet and has the advantage of less bulk in proportion to its value.

Light or Convalescent Diet.—The treatment of a convalescent depends of course upon the nature of the disease, and no rule will fit every case. Aside from such regulations as the physician may prescribe, the main point is to limit the diet to foods that are not likely to disturb digestion, and to include plenty of building and regulating materials. A simple mixed diet is suitable. Foods that may be used are milk, eggs, toast, well cooked cereals and other foods used in soft diet; mild fruits and well cooked vegetables may be added cautiously and tender meat about once a day.

Full Diet.—Full diet means an unrestricted menu, but even from full diets especially indigestible foods should be excluded. The principles of feeding sedentary persons, as described in manuals of dietetics, apply to patients who are obliged to be inactive although not really ill, as for example, a patient suffering from a broken leg. Ordinarily in such cases, as in other kinds of illness, the appetite is greatly diminished, but a word of warning should be given against overfeeding patients whose meals are their chief interest.

Constipation is especially stubborn in some types of illness, since the patient is deprived of his usual exercise and variety of food. In such cases a general laxative diet is desirable. A glass of hot or cold water or orange juice an hour before breakfast may be helpful, and at bed time hot lemonade, oranges, prunes, figs or other fruit if allowed.

It is essential for patients to drink water freely, and it should be given between meals. Persons inexperi-

enced in the care of the sick frequently make the mistake of bringing water only when a patient asks for it.

Serving Food for the Sick.—The diet should be simple—only a few kinds of foods at a time, and those plainly but very carefully cooked and seasoned. Meals should be served with strict regularity; waiting



FIG. 32.—An attractive tray set conveniently for the patient.

may destroy all desire for food. Before the tray is brought to the bedside everything should be arranged so that the patient may eat in comfort.

Individual sets of dishes for the sick may be purchased, and their convenience makes them desirable. Paper napkins may be used in many cases to save laundry work.

The appetite should be tempted by the appearance of the tray—attractive dishes neatly arranged, no food slopped over, hot dishes hot, and cold dishes cold, when they reach the patient, and a pleasant surprise in the shape of a pretty garnish, a flower or a new dish.

The patient's likes and dislikes should be considered as far as possible, but most patients should not be

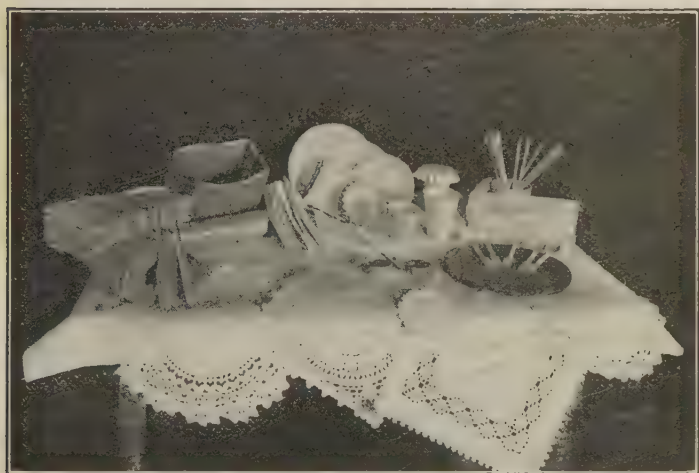


FIG. 33.—Suggestions in paper for a tray easily burnt if patient has a communicable disease.

consulted about their menus beforehand. An article that has been especially disliked should not be served a second time unless it can be disguised beyond a possibility of detection. The patient who has been long confined to his bed thinks much of his immediate surroundings and his meals are the chief events of the day; therefore too much care cannot be bestowed upon their preparation and service.

Feeding a Helpless Patient.—Helpless and weak patients must be assisted to eat or drink. A napkin

should first be placed under the patient's chin. The attendant should place her hand under the pillow, raise the head slightly, and hold the glass to his lips with her other hand. An ordinary tumbler can be used by a patient lying down if it is not more than a quarter full, or a special feeding cup may be purchased. Bent glass tubes may be used for cool liquids. They should be washed immediately after use. A child who can sit up sometimes takes more nourishment if it is given through a soda water straw.

If the patient must be fed with a spoon care should be taken that the liquid is not too hot. It should be given from the point of a spoon placed at right angles to the lips, and plenty of time between mouthfuls should be allowed. A swallow should not be given at the moment when the patient is drawing the breath in. Great patience is required if a helpless person is to be fed acceptably. The attendant should sit by the bedside rather than stand, should present at least the appearance of having unlimited time, and should endeavor not to deprive the patient in any way of the satisfaction he may derive from his nourishment.

QUESTIONS AND EXERCISES

1. What needs of the body does food supply?
2. Give an outline of the digestive process.
3. Tell what is meant by (a) a *building* food; (b) a *regulatory* food; (c) a *growth* and *health* food. Give examples of each.
4. What effect does the mental attitude have on the digestive process? How would an understanding of this aid in feeding the sick?
5. Name the four classes of diet for the sick and give several articles under each.
6. Why is constipation a common ailment among patients confined to bed? What attempts should be made to overcome it by the diet?

7. Why is it necessary for sick persons to drink water freely, and what efforts should the attendant make to encourage them to do so?
8. How would you serve a tray to a sick person to make it most attractive and palatable?
9. How may a helpless person be aided in eating?
10. Prepare and serve a tray for a sick person?

FOR FURTHER READING

- Feeding the Family—Mary D. Rose.
Food for Health's Sake—Lucy H. Gillett (National Health Series).
Food Selection Text Book—(American Red Cross Pamphlet No. 718).
Food: Why? What? How?—(American Red Cross Pamphlet No. 725).
Health and Disease—R. I. Lee.
How to Live—I. Fisher and E. L. Fisk.
Newer Knowledge of Nutrition, The—E. V. McCollum.
Notes on Nursing—Florence Nightingale.
Nutrition Class, The—(National Child Health Series).
Nutrition in Relation to Health and Efficiency (iii. Positive Health Series).
Personal Hygiene Applied—J. F. Williamson.
Practical Dietetics—Alida F. Pattee.
Preventive Medicine and Hygiene—M. J. Rosenau.
Human Mechanism, The—T. Hough and W. T. Sedgwick.

CHAPTER XV

SPECIAL POINTS IN THE CARE OF THE CON- VALESCENT, THE CHRONIC PATIENT AND THE AGED

In many cases of sickness institutional care has marked advantages. It may be the only solution when adequate provision for the sick is impossible at home; and it is often a necessity when a patient requires special equipment or apparatus, expert nursing and medical attention within reach both day and night.

On the other hand, it would not be desirable even if it were possible for all sick persons to be cared for in institutions. Care at home when it is adequate may be more successful than equally skillful care given elsewhere, since the sick quite as much as the well are injured by long separation from normal family life. Because they need the attention of their own families, most convalescent and chronic patients and most aged persons are cared for at home. In the great majority of cases no better place for them could be found. Since patients of these groups have needs peculiar to themselves, some special points in caring for them are considered in this chapter.

THE CONVALESCENT PATIENT

After serious or prolonged illness the vitality is generally low and all bodily processes are likely to be depressed. During convalescence, therefore, the

digestion is feeble, the muscles are weak so that fatigue follows slight exertion, and the sluggish condition of the circulation renders the patient especially sensitive to cold. Since the nervous system also becomes depressed and irritable, a convalescent patient is easily excited, easily discouraged, and quickly fatigued by mental effort. He finds the simplest decisions hard to make, and his emotions difficult to control. Indeed, many a patient who has borne acute pain with unflinching courage becomes peevish at this stage, weeps easily, and expects more expression of sympathy than is good for him. Some persons naturally make quick recoveries, while others recuperate slowly. A long and tedious convalescence, it should be remembered, is the patient's misfortune rather than his fault.

Need for Gradual Progress.—In restoring a convalescent patient to normal living it is imperative to proceed slowly. Food should be increased gradually both in variety and in amount. Moreover, the patient's appetite is not always a safe guide, and it may need to be encouraged or to be restrained. Both mental and physical exertion should begin only under careful supervision, and should increase by slow degrees. The patient should sleep as much as possible, should take long intervals of rest, and should continue no occupation to the point of fatigue. A patient who has been ill in a hospital or who has had at home the exclusive services of a nurse or an attendant, often finds the period following his return or following the nurse's departure an exceedingly difficult transition. The family should not expect or allow him to resume too many duties at a time when the mere acts of bathing and dressing may demand all the strength he has. Many convalescents are obliged, or think they

are obliged, to take up regular work again before their strength is fully restored. There is generally no economy in so doing. Indeed, time is saved in the end by waiting until recovery is complete before undertaking full work.

Direction of Thought toward Normal Living.—Important as it is to build up the patient's physical strength, it is hardly less important to direct his thoughts away from himself and his sickness, and to help him renew his interest in normal living. During his illness he has of necessity relied upon the judgment and support of other persons, and his pain and discomfort have forced him to think constantly of himself and his many needs. The habit of sickness is readily broken by some persons, particularly by those whose nervous exhaustion has not been great and whose interests outside themselves are naturally keen. But the sick point of view has remarkable tenacity, and other patients, unless circumstances or deliberate efforts redirect their thoughts, will look upon themselves as invalids to the end of time.

Hopefulness promotes health, while discouragement, apprehension and unhappiness lower the tone of the whole system. Hence set backs, failures, delays and relapses should not be dwelt upon, but signs of progress should be mentioned judiciously however, since overdone attempts to cheer a patient seldom fail to have the opposite effect. If objects or situations that suggest undesirable thoughts are eliminated, those thoughts tend to recur less often. Therefore, in order to break the habit of sickness, old thoughts must be gradually banished and new ones must be substituted. Sick-room appliances should be put out of sight as soon as they are no longer needed, and the patient

may profit by moving into a different bed room. A few days spent away from home as soon as his strength permits often prove effective in breaking up sickness associations. The patient is generally encouraged when he finds that he can sleep in a different bed, endure some fatigue and exist without daily visits from the doctor. Even a day spent at a different house in the same town sometimes directs the patient's thoughts into fresh channels. Gradually, but as quickly as safety allows, he should take his place in the normal family life and cease to be treated as an exception. Even at this time however, after having resumed the usual duties, continued gain in strength necessitates usually continued adherence to whatever schedule of diet, rest, recreation and early bed time has been advised.

The Stimulus of Out of Door Life.—The stimulus, both physical and mental, to be gained during convalescence from an out of door life is almost immeasurable. A considerable part of every day should be spent in the open air. The sick person's chair should be placed in a protected, sunny corner of a porch as soon as his condition will allow it. The time thus spent may be gradually increased. He may then take walks, lengthening these as strength increases. Out of door life brings an added enthusiasm if the patient has, or can be encouraged to foster, an interest in birds or in the many varieties of trees, shrubs and flowers.

The Value of Purposeful Occupation.—Merely eliminating associations with sickness, however, is not enough. Exhorting a patient to forget himself and to become interested in something seldom accomplishes anything, especially if he is so depleted by

illness that the thought of everyday activities suggests only weariness and pain. A person so weak that he is thoroughly fatigued by dressing himself should not be expected to view with enthusiasm the prospect of a full day's work. Much, however, may be accomplished by providing something that the patient really likes to do, and deliberate efforts must be made to stimulate his interest in some occupation, however simple it may be.

Occupations for invalids are more than a means to pass away the time; they are also of distinct curative value. The patient's interest is not always easy to arouse, and some ingenuity may be needed in the beginning. Sometimes interest is best aroused by working at some handicraft in his presence, and finally offering, as a favor, to teach him to do it also. His interest in any occupation is invariably increased if a well person not only directs but shares in the work.

Care should be taken to select occupations suited to the patient's physical condition, to his age, tastes and mental development. Two or three occupations are better than one, so that he may change from one to another before any one becomes tedious. Work requiring fine motions, close attention, or concentrated thought should be used for short periods only, and no work should be continued to the point of fatigue. The patient should not be allowed to feel that he must finish a certain amount in a certain time. Even poor work is better than none, and a patient should always be encouraged by judicious praise.

Games and puzzles are useful to some extent, but an aimless occupation is not so beneficial as one which has a tangible product, particularly a product that is useful as well as beautiful. Occupations frequently

possible for invalids and convalescents include knitting, crocheting, many kinds of needle work, clay modeling, basketry, stenciling, weaving, book-binding, metal work and photography. Manuals are now available giving directions for these and many other handicrafts. Sick children often enjoy collecting stamps, post marks and other objects, making scrap books, sewing, weaving, knitting, paper folding and various other kindergarten occupations.

THE CHRONIC PATIENT

The whole field of caring for the sick offers nowhere greater opportunity for fine and finished work than it offers in the case of chronic invalids. It is an achievement of which an artist might be proud to make a chronic patient comfortable in body, happy in mind, and agreeable to others. Moreover, since success can never be attained by one who wearies in well doing, the care given to a chronic invalid tests not only the attendant's skill but also her moral and spiritual quality.

The Needs of the Chronic Patient.—Care of a chronic patient has for its aims maintaining the patient's health, rendering him as happy and comfortable in mind and body as it is possible for him to be, and providing whatever special treatment and attention his case requires. In order to maintain his health constant attention must be given to diet, to hygiene of the sick room, and indeed to all his surroundings.

Suitable Diet.—In many chronic illnesses, such as rheumatism and kidney disease, the diet is prescribed by the doctor. In every case care should be taken

that the patient is not overfed or underfed, that the food is suited to his digestive powers, that foods causing gas are eliminated, particularly if the patient's trouble is heart disease. One of the most important requirements is that he shall derive as much pleasure as possible from his food and that it shall be attractive to him.

Daily Care.—The regular daily care of the patient and of his room, already described in this book, should be scrupulously carried out, and no less scrupulously during the tenth year than it was during the tenth day. Cleanliness in every detail is absolutely essential to the patient's welfare; no one is more unpleasant either to himself or to others than a chronic patient who is neglected. Patients who are constantly in bed, it should be remembered, and paralyzed patients in particular, are peculiarly susceptible to pressure sores. If a patient is able, it is extremely important for him to sit up in a chair part of the day. Sitting up should never be omitted because it involves the expenditure of time and trouble for the attendant.

Problems of Adjustment.—It is often said that for most people some personal experience of sickness is beneficial. It can safely be said, however, that no one benefits from spending any considerable portion of his life in a state of helplessness and suffering. Behavior and character itself are determined by influences constantly coming into the mind from daily surroundings and associations with other people. One who recalls this fact needs only a moment's reflection to realize how ill adapted to healthy development of mind and character are the limited lives of the sick. Especially unfortunate is the situation of chronic invalids, shut off as they are from the objec-

tive interests and activities of normal life, deprived of all practice in making the salutary small adjustments and sacrifices required in everyday living with other people, and self-centered as they necessarily tend to become from the inevitable focusing of attention upon their own discomforts and pain.

On the whole, a surprisingly large number of invalids successfully resist the disintegrating effects of sickness upon character. But it is nevertheless true, as Dr. Weir Mitchell says, that "Sickness ennobles a few but debases many." A selfish invalid has more than once destroyed the happiness of an entire family, or spoiled the life of one member of it by monopolizing her whole time and attention. Families should remember that their injudicious sacrifices seldom bring enduring happiness or contentment to the patient himself. Indeed, in the long run such sacrifices generally injure him even more than they injure his victims. Clearly much must and should be sacrificed by members of a family to the needs of an invalid. In general it may be said that a sacrifice is injudicious if it relieves the patient of activity or responsibility that he can support without injury, if it makes him more dependent in mind or body, if it results in restricting his attention to himself and his affairs, or if it increases his tendency to make demands on others.

Need for Purposeful Activity.—Purposeful activity of some sort and the necessity for contributing to the welfare of others are essential parts of a wholesome life. If these essentials are entirely eliminated from the life of an invalid, the patient's greatest needs are probably left unsatisfied, even though the physical care he receives may be perfect in every detail. All that was said in regard to occupations for invalids

applies with particular force to occupations for chronic patients, since however valuable manual occupations may be as a means to bring about recovery, they are still more valuable in furnishing interest and purpose in a life whose only prospect is a succession of weary, useless years. Handicapped patients sometimes learn occupations that yield a financial return, and ability to earn even a little stimulates self respect and mental health, whether the money is needed or not. The important point, however, is that the finished product should have a recognized use.

In addition to enabling the patient to make things with his hands, a way should be found if possible by which he may contribute to the group of people with whom he lives. If a way can be discovered for him to do so, the opportunity should not be denied him nor should his service fail to be noted and appreciated, even if it is nothing more than telling a story to a restless child.

CARE OF THE AGED

At the end of life, as at its beginning, every individual especially needs the interest and protection of his own family. In ordinary circumstances neither a baby nor an aged person can be cared for so fittingly or so successfully in any other place as he can be in his own home.

With advancing years is to be expected a general slowing down of all the powers. In old age both body and mind show characteristic changes, and particularly changes causing lowered resistance and diminished vigor. If the manner of living is adapted to these changes, both happiness and usefulness may be prolonged. But so gradually do the changes often

come that they may escape notice for a long time, and the younger generation in looking back sometimes realizes with regret how much earlier measures might have been taken to prolong the usefulness and to mitigate the discomforts of aged parents and friends.

Provision for Warmth.—Old people are keenly sensitive to cold, since the circulation gradually becomes less vigorous and they take little exercise. Keeping them warm both in bed and out adds more perhaps to their comfort than any other one measure. They should have warm underclothing and soft shawls and other extra wraps. A real service will be rendered by the person who invents a suitable and dignified wrap for old or feeble men, who dislike the informality of sweaters and feel disgraced by shawls. Old persons should and can be kept warm in bed, by providing them with hot water bags, with warm night clothes including stockings, by using woolen or outing flannel sheets if necessary, and by providing a sufficient number of light but warm bed covers. It is not always understood that many covers do not remedy the deficiencies of a thin mattress. If a thick mattress or two thin mattresses cannot be provided, a thick comforter or even many layers of newspaper should be placed between the mattress and the springs, and another thick comforter should be placed between the mattress and the lower sheet. Rubbing the body with warm olive oil often affords great comfort, by improving the circulation and thus increasing the sensation of warmth, and also by relieving the tendency of the skin to become dry and cracked. Poor circulation at night may cause cramps in the muscles of the legs. Such cramps can usually be relieved by warmth and gentle rubbing.

Temperature and Ventilation of Room.—Old people frequently wish their rooms to be very hot, both by day and by night, even as hot as 80° or 85° , but if it is possible to keep them warm in any other way the temperature of the room should be kept at 70° . Well ventilated rooms are highly important for old people as for all others of low resistance, and it is entirely possible for their rooms to be warm and yet well ventilated.

Food.—Digestion usually becomes weaker than in earlier years, and less food is needed. It should be simple, hot, and perhaps divided into four or five meals rather than three. Old people often wake at an early hour, and hot nourishment will prevent them from growing weak and faint while waiting for the family breakfast.

Elimination.—Both constipation and looseness of the bowels are common ailments in old age. So far as possible the bowels should be regulated by means of diet. However, muscular weakness resulting in inability to control the bowels should not be mistaken for and treated as diarrhea.

Physical Activity.—It is unwise for old people to undertake unaccustomed or sudden muscular exertion, since the muscular system including the heart muscle grows weak and is generally unable to endure great strain. The bones moreover grow brittle and heal with difficulty if broken, so that persons of advanced years no matter how active should avoid walking on icy pavements, climbing on chairs to reach high shelves and placing themselves in other insecure positions. Assistance must be tactfully given, however, as active old people are inclined to resent it. On the other hand, old people should be encouraged to continue

moderate and safe activities, and to take regular exercises suited to their strength. Although increasing muscular weakness tends to make most old people indolent, it is far better for them both in mind and in body to remain as active as they can without danger of too great fatigue. At all events, they should be prevented if possible from becoming bedridden.

Need for Special Safeguards.—Provision should be made for safeguarding elderly people against certain special dangers. However, provision should be made in such a way that it does not become too self-evident and therefore, irksome to the individual thus protected. Like little children the aged are peculiarly susceptible to the respiratory diseases which cause many of the deaths commonly attributed to old age. They should therefore, be protected from persons having colds or other infections, and from crowds. Also the aged should be carefully guarded from chill and exposure and any other factors which tend to lower resistance and thus make them more susceptible to infections.

Since in old age sight, hearing and other special senses become less acute, one should remember that an old person may not notice the odor of escaping gas, the light of a smouldering match, or the sound of an approaching motor car. He must be specially guarded from such dangers of every day life. On account of their dulled perceptions, old people are sometimes unjustly considered to be less intelligent than they really are. Young people moreover should be told, if an aged person is untidy and careless in personal habits, that the apparent negligence is caused by dulled perceptions and diminished muscular control for which old people are no more

responsible than they are for failing eyesight or for inability to hear.

Mental Changes.—Families should also realize that changes in mind and character are beyond an aged person's control and that they should not be made the cause for remonstrance or arguing. Just as the arteries harden with advancing years, as the bones become brittle and as other tissues become less flexible, so changes are likely to occur in the nervous system. It is not surprising when, the brain substance like other tissues is becoming less flexible, that the powers of attention should weaken, that memory for recent events should diminish, or that other mental powers should fail. Changes in disposition are not uncommon. Previously controlled persons sometimes become querulous and exacting, while excitable and irritable persons become more placid. With most old people emotions become less intense. Feeble old people hardly realize great joy or great sorrow, and seldom look forward to death with apprehension.

Difficulty of Adjustment.—Among the most important changes that occur in the nervous system is its gradual loss in power to respond to new demands. New habits are difficult or impossible to form, and old habits are hard to break. Attempts to break the habits of a life time are therefore dangerous, and radical changes in old people's ways of living are attended by risk as well as by unhappiness. Such loss of adaptability in the nervous system makes it increasingly difficult for old people to assimilate new ideas and to understand new points of view. The feeling that the world is strange and that the next generation has gone on without them accounts for the tragic loneliness of many old people. Clearly it is for those

who are younger and more flexible to bridge the gulf between the generations by their understanding and their sympathy. .

Physical Care.—Physical care to whatever extent it is needed should be given to all old people as soon as they are unable to care for themselves, Thought should be given to adapting their surroundings and ways of living to their strength and needs, just as they should be adapted to the strength and needs of chronic patients. A warning should however be given against managing old people too much. It is hard for people who have managed their own lives successfully for many years to be managed, even for their own good. Indeed, it is questionable kindness to deprive old people of all freedom of action, even if following their own inclinations occasionally has disastrous results. Few persons would wish to prolong their lives if long life involved being thwarted in every desire, and sometimes real kindness consists in allowing old people to do certain things that are not good for them. Keeping them warm and letting them do as they please will go far to make old people happy.

Many of the changes in old age reverse the developing process of childhood. In youth and age extremes meet, and the care of the aged presents certain marked similarities to the care of little children. Both require simple food, occupations suited to their strength, and protection from infections, from fatigue, and from nervous strain; both are dependent, more or less helpless, and for their happiness both need the affectionate care of their own families. But in one respect their needs are fundamentally different. In childhood formation of proper habits is all important, and in

caring for children the future effect of every word and act must be taken into consideration. Old people, on the other hand, since they live largely in the past and their habits are irrevocably formed, may be indulged without harm in ways that would demoralize a child. With a clear conscience one may make them happy in ways both great and small. This difference makes possible one of the greatest pleasures that come to one who cares for the helpless and the sick, for of all enduring satisfactions few are greater than the power to fill with comfort and happiness the closing days of life.

QUESTIONS AND EXERCISES

1. What are the advantages of home care for the convalescent; the chronic patient, and the aged?
2. Discuss the particular needs of the convalescent patient and some means of meeting them.
3. Show some occupations, some games and puzzles which would be adapted to the strength and the desire of the types of patients mentioned in this chapter.
4. Of what advantage is out of door life to these patients? How can their daily life be planned to include this?
5. Show out of door protection for an aged person sitting out of doors in warm weather. In cold weather.
6. List some particular problem of the chronic patient.
7. What are the special needs of the aged? How may provision be made for these?

FOR FURTHER READING

How to Live—I. Fisher and E. L. Fisk.

CHAPTER XVI

CARE OF PATIENTS WITH COMMUNICABLE DISEASES

Care of a patient suffering from transmissible disease is adequate only when it accomplishes two definite results. One result, which concerns the patient primarily, is to bring about his recovery as rapidly and as surely as possible. The other result, which concerns the community rather than the individual, is to make it impossible for the patient to infect others with his disease. In every case of communicable disease, from a slight cold in the head up to serious cases of pneumonia or typhoid fever, both the patient and the community must be constantly safeguarded.

Transmission of Disease Germs.—Disease germs are present in the bodies of persons suffering from communicable disease, but they may also exist in the bodies of persons in good health. If present in the body, they may leave it in any bodily discharge. While every kind of germ does not leave the body by all the different routes, it is nevertheless true that most germs expelled from the body are carried in discharges from the nose, throat, bladder or bowels. Germ-laden discharges of an infected person may be distributed to other persons by water, milk and other foods, by certain insects, by unclean hands, by common drinking cups, towels, handkerchiefs and similar articles, and directly by nose and throat spray. After they have been thus conveyed to other persons, the

germs make their entrance into the body of their new victims through the digestive tract, through the nose, throat and other mucous membranes or through breaks in the skin. Prevention of communicable diseases, therefore, depends upon the measure of success attained in blocking the transit of germs from person to person. Methods of prevention however, though easy to understand, are unfortunately sometimes difficult to carry out. In order to carry them out effectively one must devote to the problem great accuracy, unremitting care, considerable intelligence and a highly developed conscience.

Incubation Period.—The interval between the moment when pathogenic (disease producing) germs enter the body, and the time when symptoms first appear and the patient begins to feel ill, is called the incubation period. Incubation periods vary according to the disease from a few hours to two or three weeks. The length of the period also varies somewhat in different cases of the same disease.

CARE OF PATIENTS WITH COLDS OR OTHER SLIGHT RESPIRATORY INFECTIONS

The usual symptoms of infectious disease include fever, chill, sore throat, nasal discharge, cough, headache, vomiting and other digestive disturbances, and a general feeling of being sick all over. When any of these symptoms appear, unless they are very slight, and easily accounted for, a doctor should be called. The patient, whether child or grown person, should go to bed in a room alone and should stay in bed at least as long as the fever and symptoms of cold in the head continue, in order to protect others as well as himself. Persons in active life, it is true, are not always able to

go to bed during colds; but there is no doubt that ultimately they would save time by doing so, also, they may thus escape serious illness. It is especially necessary for children to remain in bed when suffering from colds, not only to insure their own well-being but also to protect others, since children are notably careless in regard to coughing, sneezing and borrowing handkerchiefs. The patient needs mental rest as well as physical, and should not be allowed to work in bed.

Nose and Throat Discharges.—The patient's nose and throat discharges should be received only in material that can be burned, like old linen or muslin, cheesecloth or paper napkins. As soon as they are soiled these handkerchief substitutes should be placed in strong paper bags and afterward burned. Soiled handkerchiefs lurking under pillows or in other parts of the bed may infect other people or reinfect the patient. Handkerchiefs that may not be burned should be placed as soon as soiled in a covered receptacle filled with cold water containing a little washing soda. When several have been collected they should be boiled in the same covered receptacle for twenty minutes. After boiling they may go to the regular laundry.

Diet.—The patient's diet at first should be liquid or soft. Large amounts of nourishment are not necessary during the first day or two, especially if the illness is likely to be short, but water should be taken as freely as possible. Lemonade and similar drinks from fruit juices are usually advised if the patient finds them acceptable. Sometimes hot drinks are to be preferred as an aid to free elimination which is of great importance.

When the active symptoms have subsided the patient will need more food than usual, and a liberal, nourishing diet for a few days will do much to prevent the weakness and depressed vitality that often follow colds, tonsillitis and other comparatively slight respiratory infections.

Regulation of Bowels.—The bowels should be carefully regulated, and a mild cathartic is often beneficial at the outset. The drinking of a large amount of water and the observance of a habitual time are two factors which will assist in this regard in time of illness as well as in health.

Daily Care.—Even during slight illness a patient should receive the daily care already described, and should be made as comfortable as possible. As in any illness, sponging and alcohol rubs are refreshing. An ice bag or cold compress may relieve headache, and hot applications or a cold compress on the throat are often soothing. The throat may be gargled with a solution of one teaspoonful of common salt dissolved in a pint of boiled water. If the patient perspires profusely he should be rubbed with a towel until dry, and provided with fresh, warm, night clothes. An alcohol rub may well follow. It is most unwise for a patient who is perspiring freely to get up in a cold room for any purpose. The necessity for proper care in every small detail both from the early beginning and throughout the course of a common cold cannot be over emphasized.

Prevention.—Common colds are far more serious than is usually supposed, and for that reason their prevention too is of the utmost importance.

“More people probably suffer from common colds than from any other single ailment . . . Could the sum total of suffering,

inconvenience, sequelæ, and economic loss resulting from common colds be obtained, it would at once promote these infections from the trivial into the rank of the serious diseases . . . Colds are contracted from other persons having colds, just as diphtheria is contracted from diphtheria. Arctic explorers exposed to all the conditions ordinarily supposed to produce colds do not suffer from these ailments until they return to civilization and become infected by contact with their fellowmen . . . While common colds are never fatal, the complications and sequelæ are serious. These are rheumatic fever, pneumonia, sinusitis, nephritis, and a depressed vitality which favors other infections and hastens the progress of organic diseases.

"Common colds are perhaps most contagious during the early stages. If persons isolate themselves by remaining in bed during the first three days of a cold, they would not only benefit themselves, but would largely prevent the spread of the infection. The contagiousness and severity of colds differ in different epidemics and in different seasons of the year, depending upon the particular micro-organism involved and other factors not well understood.

"The prevention of colds consists first, in avoiding the infection, and, secondly, in guarding against the predisposing causes. Contact should be avoided with persons who have colds, especially in street cars, offices, and other poorly ventilated spaces where the risk of persons coughing or sneezing directly in one's face is imminent. Contact with the infection may further be guarded against by a careful self-education in sanitary habits and cleanliness, based upon the modern conception of contact infection.

"Colds, like other diseases conveyed in the secretions from the nose and mouth, are often conveyed by direct and indirect contact through lack of hygienic cleanliness and a disregard of sanitary habits. Kissing, the common drinking cup, the roller towel, pipes, toys, pencils, fingers, food, and other objects contaminated with the fresh secretions will transmit the disease." ("Preventive Medicine and Hygiene," Rosenau.)

CARE DURING MORE SERIOUS INFECTIONS

When a patient is suffering from serious transmissible disease, he needs the most skillful care available, and for the sake of others he must be strictly isolated or

quarantined. By isolating or quarantining a patient is meant making such arrangements that germs expelled by the patient are necessarily destroyed before they can enter the body of another person. Isolation, therefore, includes disinfection, and while methods vary according to the nature of the particular disease, yet the principles given below are applicable in most cases.

Separate Room.—The first essential is that the patient should have a room to himself. No one except those caring for him should enter the sickroom for any purpose whatever. Visitors should be rigidly excluded. At the outset all unnecessary articles should be removed from the sickroom, and it should be possible to boil, burn, scrub or otherwise thoroughly clean everything allowed to remain. The windows should be screened in summer, and flies must be excluded. Fresh air is needed, and ventilation of the room must be adequate both day and night. It is highly desirable to reserve a bathroom for the exclusive use of the patient and his attendant and also to reserve a room adjoining the patient's room for the exclusive use of the attendant. When it is impossible, as it often is, to give up so much space, each family must make the best arrangement it can to separate the patient and his attendant from the rest of the family.

The Prevention of Transmission of Disease.—In her practice of disinfection, the home attendant should remember that her ten fingers are the ten most active agents in distributing the communicable diseases. After handling the patient or anything that the patient has touched, and whenever she leaves the patient's room, she must scrub her hands thoroughly with warm water, soap and a nail brush. She should

not soil her hands unnecessarily, even though she intends to scrub them later. She must remember for her own protection to keep her hands away from her mouth and face, and to cleanse them with special care just before eating. If special disinfection is needed in addition to the scrubbing, she must use conscientiously whatever solution the doctor orders.

At the same time that she is caring for a patient with a communicable disease, the attendant should not care for children or other members of the family. She should not prepare food, and she should not handle dishes or utensils used by other persons. It is true however that every day many women are doing just these things, in the home. Perhaps, there seems no other course. Yet surely if any arrangement to insure safety can possibly be made, it is inexcusable to run the risk of spreading diseases which kill thousands of persons every year and injure many more for life.

Hospital Care.—When home conditions render adequate care and strict isolation of the patient impossible, hospital care should be seriously considered. No personal or sentimental objections should be allowed to influence the decision, if removing the patient to a hospital is necessary to safeguard his welfare or the welfare of the family. Hospital care should be considered especially for patients with typhoid fever, because untrained persons cannot safely care for patients so seriously ill. Since a patient with typhoid needs skilled care, and since he greatly endangers other persons, most authorities consider hospital care essential unless the patient can have the continuous services of a graduate nurse and almost ideal home conditions. Many cases of typhoid, it is

true, are successfully nursed at home in extremely adverse conditions by visiting nurses. Yet in few kinds of sickness is continuous care by a graduate nurse more necessary to protect the community as well as to safeguard the patient himself.

Care and Supervision of the Tuberculous Patient.—

Adequate care and supervision of the tuberculous patient involves several points which necessitate skilled advice. The tuberculous patient should therefore in all instances remain under the care and direction of a physician. The question of home or institutional care for a person with tuberculosis must always be carefully considered from the standpoint of his own welfare and of the protection of others. The physician will advise in this regard, and needless to state, his advice should be followed. In some cases tuberculosis may perhaps be cared for at home with comparative safety, and in some other cases the risk may not be great if the patient is intelligent, careful, and well supervised. When in his judgment the tuberculous person may remain in the home, the physician will plan the regime necessary for the patient's welfare and for the protection of others. Specific points in regard to the disinfection which is necessary are presented under the title, "Disinfection" pages 291 to 296.

Every one should face the fact, however, that all cases of tuberculosis of the lungs involve some risk to others in the family, and that most cases involve great risk. The danger to children is greater than to adults. Tuberculosis is fatal to practically all children under one year of age. Approximately 75 out of every 100 children under two years of age who contract tuberculosis die. For this reason, special safeguards

should be thrown around infants and young children who are born of tuberculous parents. Adequate protection means, in most instances, prompt separation of the infant from the mother or any other tuberculous person in the home.

Since even a brief exposure of the new-born to infection may have fatal results, in every such instance the family physician should be consulted and plans made for the immediate and continued safeguarding of the child. It is now believed that in most instances tuberculosis is acquired in childhood. When infection occurs after the second year, owing to the resistance to this disease after two years of age, it may lie quiescent and not manifest itself as an active disease until later in life. It may not then become active unless the individual's resistance is lowered by some unfavorable condition such as the development of pneumonia or other communicable disease, or because of poor nutrition, overwork, unhealthy environment and the like, all of which tend to lower vital resistance. It is a matter of common knowledge that an attack of typhoid fever is frequently followed by the development of tuberculosis. Fortunately, the disease tuberculosis may be kept inactive and further development either in childhood or in late life may be prevented by the use of known means of protection and by the maintenance of a high grade of health through regular examination, correction of defects, and consistent observance of proper health habits and precautions.

CHILDREN'S DISEASES

The so-called children's diseases are probably the most familiar and the least regarded of all those belonging to the communicable group. Most persons,

it is true, realize that scarlet fever is serious, but few realize that fewer deaths occur annually in the United States from scarlet fever than from measles, whooping cough, or diphtheria. Each disease is not equally prevalent every year, but an average for the three years, 1920, 1921, and 1922, indicates that while scarlet fever caused 5,000 deaths, annually, measles, caused 6,000, whooping cough 10,000, and diphtheria about 17,000. Most of these deaths were children under 5 years of age, as these diseases are most fatal for the very young child. For example, during the five years period 1917-1921, inclusive, approximately 93 of every 100 deaths from whooping cough were of children under 5 years of age.

Dangerous After Effects.—In considering the seriousness of these diseases, one must not forget their after effects. These may be even more serious than the diseases themselves. At this very moment many people are going through life handicapped by weakened heart or kidneys, by defective sight or hearing, because their parents were careless about exposing them to childhood infections.

Means of Prevention.—Means of prevention of diphtheria and of scarlet fever have been discussed on pages 71-72.

Every mother should realize that the children's diseases are most infectious in the early stages. Early symptoms include fever, sore throat and nasal discharge, and the trouble at first often resembles a severe cold. During this stage the diseases are most easily communicated. Measles in particular is generally not recognized until its most infectious stage has passed. The moral to be drawn is that sore throats, coughs and colds should never be regarded lightly,

and that their spread should be prevented by all possible means.

CONTROL OF COMMUNICABLE DISEASES

The accompanying table has been adapted from the U. S. Public Health Service pamphlet, "The Control of Communicable Diseases," Report of the American Public Health Association Committee on Standard Regulations, Edition of 1923, with addition of material dealing with principal signs and symptoms from other pamphlets of the same service.

Disinfection.—Great importance is attached to proper disinfection *during the course* of a communicable disease. In this connection,¹ "all agree that disinfectants can be used with the greatest effect at the bedside of the patient. The patient is the source of infection. In most of the infectious diseases, he is continually giving off virulent organisms in his secretions and excretions. These should be disinfected by proper means as soon as possible after being discharged; also, all linen, bedding, dishes, and other utensils which necessarily come in contact with the patient. In some diseases it is not necessary to disinfect all discharges, though in case of doubt the error should be made on the side of safety . . . The patient as the source of infection can not avoid transferring it in some degree to everything he touches." In every case therefore, the attendant should learn from the doctor just how that particular disease is communicated, just what discharges, and objects need to be disinfected, and just what methods and disinfectants he considers most effective for this purpose. The following general methods may be suggested, but it

¹ U. S. Public Health Service—"Practical Use of Disinfectants."

must be remembered that from time to time new methods are devised and new disinfectants are discovered. It may also be well to add that in the case of new, commercially advertised disinfectants, it is advisable before placing dependence upon them to consult the physician in regard to their effectiveness and manner of use.

Care of Nose and Throat Discharges.—The care of handkerchiefs has already been described on page 283. Cloths or cotton used to wipe the eyes or to receive any other bodily discharge including vomitus, should be collected in the same way and burned. Everyone should be taught in early childhood to cover the nose and mouth with a handkerchief during coughing and sneezing; if the patient has not already learned to do so, he must be taught now. If the amount of expectoration is great, waterproof receptacles should be provided which should be burned with their contents. These sputum cups together with supplies of paper handkerchiefs may, in some instances, be obtained for the use of tuberculous patients upon application either to the state or to the local board of health.

Care of Discharges from the Bowels and Bladder.—At the present time the following preparations are commonly used to disinfect stools and urine: chloride of lime solution, made freshly whenever needed by mixing thoroughly $\frac{1}{2}$ pound of chloride of lime with one gallon of water; and unslaked lime to which is added hot water. The chloride of lime solution should be at least twice, and the unslaked lime at least one-eighth the bulk. Fecal masses should be broken up so that the disinfectant may reach every part. They may be stirred with tightly twisted toilet paper, which should be left in the bedpan and disinfected with

the stools. If these substances are used, disinfection is considered complete at the end of two hours, and the contents of the bedpan may then be emptied into the toilet with safety. ¹“When other agents are not available, a bucket of boiling water (about 1 gallon) added to a stool, which is then covered and allowed to stand till cool, will destroy practically all bacteria.” It may be necessary to provide two bedpans so that one may be available for use while the contents of the other are being disinfected. Bedpans and urinals should be boiled daily and kept thoroughly clean at all times.

In places having no sewage system, disinfected discharges may be emptied into a trench situated at a distance from the well, and then covered with earth. As an extra precaution, the *disinfected* discharges may be mixed with sawdust and kerosene and burned in the trench. Directions for installing a sanitary privy may be found in Bulletin 68 of the United States Public Health Service.

Care of Bath Water.—Bath water and water that has been used for cleansing the teeth and mouth may be disinfected in the same way as urine, or it may be emptied into a suitable receptacle and boiled ten minutes before emptying into the sewer.

Care of Hands.—The most effective disinfection for the hands is entire cleanliness which can best be secured through the use of plenty of mild soap and warm water. The hands should be thoroughly scrubbed with a brush, and particular attention should be given to the nails. If some additional agent is desired, it should be used only in addition to the soap

¹ United States Public Health Service Reprint No. 287, “The Practical Use of Disinfectants.”

and water scrubbing, for nothing can take the place of cleanliness.

Care of Utensils.—A sufficient number of dishes, spoons, tumblers, basins, etc. must be reserved for the patient's exclusive use. These utensils must be washed in a dishpan not used for any other purposes and dried with towels not used for other dishes. Mistakes frequently occur by which other persons use the patient's dishes, and in consequence his dishes should not be kept in the cupboard with other dishes. If no other safe place can be found, they had better stay in the patient's room covered with a clean cloth or napkin.

The dishes should be scalded daily and at the termination of the illness they must be boiled briskly for ten minutes before they are returned to general use. Food left on the patient's tray should be burned. It should not be eaten by any one else, nor placed in the pantry or refrigerator with other food, nor given to dogs, cats, or other animals.

Care of Linen.—A satisfactory way to disinfect towels, night gowns, bed linen, etc. is to place the articles immediately in a wash boiler filled with cold water to which a little washing soda has been added, and then to boil them in the same water for twenty minutes. They can afterward go safely into the regular laundry. The boiling may be done once a day. Articles soiled in the meantime may be left to soak in the cold water and soda.

Termination of Quarantine.—After recovery, the patient as well as the attendant should, if the doctor thinks it necessary, disinfect themselves as he directs before they mingle again with other people. The exact time when it is safe for a person to come out

of quarantine and resume ordinary life varies in different diseases. Moreover, opinion differs in regard to quarantine periods for the same diseases, so that the regulations of Boards of Health in different cities show wide variations. It is of course impossible to say at just what moment every patient, or even the majority of patients, will stop expelling germs. Quarantine periods are intended to protect the community as completely as possible without causing unnecessary hardship to individuals. In any given case, the local regulations should be strictly observed.

Terminal Disinfection.—A room that has been occupied by a patient with a communicable disease should be thoroughly cleaned at the termination of the illness. Dishes, utensils, bed linen, etc. should be cared for in the ways already described. The floor, bedstead and other furniture should be washed with hot water, soap and washing soda. The walls, windows, ledges etc., should be wiped with a cloth wrung out of hot water, soap suds and soda. The mattress should be aired out of doors in the sunshine for a day or two. After both sides have been exposed, it should be well brushed or cleaned with the vacuum cleaner. If badly soiled, it is best to destroy the mattress unless the local board of health has facilities for steam sterilization. Ordinary washing is all that is generally required for blankets, but if badly soiled they should be sterilized by steam or burned. The room should then be thoroughly sunned and aired for a day or two, with the windows wide open both day and night. Sunning and airing are among the most important measures in disinfecting a room, and should not be slighted. If there has been gross pollution, as when a careless consumptive persists in spitting on the

floor and walls, it may be necessary in addition to thorough cleaning to remove the old paint and paper and have the room done over. The room may safely be occupied after all these measures have been taken.

Fumigation.—Many boards of health have abandoned fumigation (gaseous disinfection) after communicable diseases, except after those which like typhus and yellow fever, are carried by vermin or insects. For the extermination of such insects and vermin, sulphur gas remains the most effective agent for general use. Dry formaldehyde gas, which has been used for fumigation, has a violent effect on mucous membranes, but its power to kill bacteria, even on surfaces, appears to be weak, while its penetrating power is not sufficient to disinfect bedding, carpets, upholstered furniture and other fabrics. Since fumigation is costly, troublesome and unnecessary there seems to be no good reason for using it. Moreover, its use gives a false sense of security, so that really effective measures like sunning, airing and scrubbing are likely to be neglected.

The theory and practice of disinfection, it is clear, have radically changed in recent years. Modern knowledge requires disinfection during the course of the disease. Such disinfection accomplishes the destruction of germs from the moment when symptoms are first noticed. All the time, day and night, this disinfection must go on with unremitting care. Today wet sheets are not hung in doorways nor are chemicals left about in open dishes to disinfect quite harmless air, but scrupulous cleanliness at all stages of disease is recognized as one of the most important measures, if not the most important measure, in disinfection.

QUESTIONS AND EXERCISES

1. Why is isolation necessary in case of communicable disease?
2. List the various ways in which communicable diseases are transmitted.
3. What is meant by incubation period?
4. Name some of the early symptoms common to most infectious diseases. If such symptoms appear, what should be done?
5. What are the dangers of a common cold?
6. What measures are necessary to isolate a patient who is suffering from a communicable disease?
7. Outline the means of disinfection which should be used.
8. What is the danger of caring for tuberculosis in the home?
9. What are the particular dangers of the children's diseases? How may they be prevented?
10. Give a simple method of disinfecting: (a) nose and throat discharges; (b) bowel and bladder discharges; (c) bath water; (d) the hands; (e) dishes and utensils; (f) linen.
11. What care should be taken at the termination of quarantine?

FOR FURTHER READING

Control of Communicable Diseases, The—(Report of the American Public Health Association Committee on Standard Regulations, Reprint 436, U. S. Public Health Service, Washington, D. C.)
 Health and Disease—R. I. Lee.
 New Public Health, The—Hibbert W. Hill.
 Preventative Medicine and Hygiene—M. J. Rosenau.

CHAPTER XVII

COMMON AILMENTS AND EMERGENCIES

The purpose of this chapter is to describe a few simple home measures for the relief of slight ailments and injuries. Means also are mentioned which will give some immediate help in case of emergency, often preventing the development of more serious trouble. Some such knowledge used with judgment and care will moreover do much to soothe little ills as well as to mitigate suffering in greater ones by safeguarding the welfare of the sufferer until the physician is able to reach him.

In connection with the discussion of simple measures of relief for common ailments and emergencies, it should ever be borne in mind that the point of greatest importance is perhaps the ability to know when a certain condition is in reality only a small ill, or when it is the seemingly small beginning, the outward indication of a serious trouble. The obligation to protect human life demands that the person who aspires to relieve suffering shall use that which is safe as well as effective. Safety demands before all that such a person should be able to recognize the condition for which the physician's skilled care is necessary and in which his own efforts would be useless or even worse than useless. Fortunately, telephone, automobile and airplane have so shortened distances that we can quickly secure professional assistance if only we know when we require it.

The subject of first aid is treated in the American Red Cross First Aid Textbook. Practical instruction in this subject may be obtained in many communities in the Red Cross First Aid instruction classes conducted by an authorized physician.

CONDITIONS AFFECTING THE DIGESTIVE TRACT

Colic.—Colic is a sharp cramping pain in the abdominal region. It is caused frequently by indigestion from indiscretions in eating or from chilling. It may be the chief symptom of either a mild or an acute attack of appendicitis. Pain from an acute attack of appendicitis is more often located on the right side. However, pain associated with the condition of appendicitis is sometimes more or less general over the entire abdomen, and therefore, by any other than trained physician, may easily be mistaken for cramps from indigestion. It is of course known to all that any condition involving a doubt as to the presence of appendicitis is serious and demands the immediate attention of a physician. Repeated or severe attacks of cramps or cramping associated with exhaustion of the patient, soreness of the abdomen, fever, vomiting, or stubborn constipation, should be promptly seen by a physician and no food, drink or medicine should be given except as he directs.

In cases of colic which are readily traced to indigestion, frequently a teaspoonful of baking soda in a glass of hot water will relieve the pain. Essence of peppermint in water, or soda mints may be used for the same purpose. Babies may be given a few teaspoonfuls of warm boiled water or an enema of warm water. Further measures should be under the direction of a physician.

Constipation.—For a discussion of the means for correcting constipation refer to pages 5 to 7.

Diarrhea.—Diarrhea is ordinarily caused by an infection, or by an offending substance in the intestines. The offending substance should be removed before attempts are made to check the diarrhea. When a baby has diarrhea four things should be done. All food should be withheld. Boiled water should be given freely. Bowel movements should be saved for the doctor to see. If it is impossible to secure a doctor's advice castor oil may be given. With older children as well as with adults a similar procedure may be carried out. In all cases it is safer to drink boiled water freely and to take no food until the doctor comes.

Nausea and Vomiting.—Nausea and vomiting are usually caused by injudicious eating, especially when a person is worried or fatigued. It may be due to nervousness or to many other causes. A doctor should be consulted if either one occurs often or if vomiting is accompanied by pain, prostration, diarrhea, fever or other acute symptoms. A teaspoonful of baking soda or several soda mints may be given dissolved in a glass of hot water. A cathartic, such as Epsom Salts, may be helpful. With any of these the patient should drink a large quantity of hot water to wash out the stomach. If immediate emptying of the stomach seems desirable, salt or mustard in warm water may be used to produce vomiting. A nauseated person should lie down in a cool quiet place and should be made as comfortable as possible in every other way also.

DISORDERS AFFECTING THE EARS

Disorders affecting the ears should receive medical attention at once. Many cases of unnecessary but

nevertheless permanent deafness result from neglect of such conditions.

Earache.—To give some immediate relief for an ordinary earache, the patient may lie with the ear on an ice bag, or dry heat in the form of a hot salt bag, or a hot water bag may be applied. However, in case of continued or repeated earache, or in a condition of discharge from the ear, swelling in or about it, pain or tenderness behind it, the physician's skill is required as soon as it may be secured. To relieve pain, pending the arrival of the physician, the patient may lie with the ear on an ice bag. No other measures however should be used, and in these conditions nothing whatever should be put into the ear before the doctor comes and nothing thereafter except according to his directions.

Insects.—Immediate relief is highly desirable when an insect has entered the ear since such an accident usually causes acute distress. In case of its occurrence, let the patient lie on the unaffected side. Drop olive oil into the affected ear. The insect usually suffocates in the oil and floats to the opening of the ear canal where it may be readily removed. The patient should lie then upon the affected side so that the oil may drain out of the ear.

Foreign Bodies.—Foreign bodies lodged in the ear (or indeed in any body cavity) call for the prompt attention of a skilled physician. Too frequently clumsy and unwise efforts to remove such articles have only served to move them further in and to further complicate the trouble by dangerous injury to the delicate linings. Hair pins, crochet hooks and similar instruments should never be used for such a purpose.

CONDITIONS IN WHICH THE EYES ARE AFFECTED

Foreign Bodies in the Eye.—A foreign body in the eye may sometimes be removed by holding the eye closed—not tightly—so that the tears will accumulate and wash it out. If this fails, pull the upper lid over the lower two or three times, or with the finger close the nostril on the opposite side and have the sufferer blow his nose. The eye should not be rubbed, since this may cause the irritating object to injure the delicate covering of the eyeball.

If the foreign body still remains in the eye, examine first under the lower, then under the upper lid. For the former, have the patient look up, press the lower lid down, and if the foreign body is seen, brush it off with the corner of a clean handkerchief. The upper lid is not so easy to see. Let the patient, with head bent backward, sit in a low chair under a good light or before a window. Stand behind him. The patient should look down. Draw the upper lid down, out, and then gently roll it back over a cotton swab or a match placed across the middle line of the lid. With a corner of a clean cloth gently wipe the object away if visible. A drop or two of castor oil placed in the eye will help to overcome the irritation, or cold compresses continued for an hour or more will be soothing. If difficulty is encountered in removing a speck from the eye, if it seems imbedded in the eyeball, if the injury seems severe, or if irritation continues after several hours, apply a cold compress, bandage it firmly so that the eye ball is kept at rest, and secure the aid of a physician. Roughness, carelessness, or use of any but entirely clean materials may do serious injury.

Styes.—Frequent styes may indicate either eye-strain or a general run-down condition. A doctor

should be consulted as to the cause and the means of correcting this condition and so also preventing their formation. The immediate pain from a styne may sometimes be relieved by hot moist applications to the affected eye. If matter appears, the doctor should treat this local condition as well.

CONDITIONS AFFECTING THE NERVOUS SYSTEM

In conditions affecting the nervous system we have frequently a state so severe as to cause total or partial loss of consciousness. This may result from any one of a number of causes, and in order to give adequate treatment and to prevent subsequent attacks, the assistance of the physician is necessary. However, many of these conditions call for some immediate attention which can be given with safety and relief to the patient and which will, if properly carried out, be of real assistance to the physician when he reaches the case.

Stimulation is frequently necessary in conditions in which the nervous system is affected. Heat and fresh air both have a stimulating effect. They are safe and are practically always available. Quiet and a restful position allow the body to make the most of its own resources of strength and recuperation. They are therefore fully as necessary and as helpful as outside stimulation. The medicinal stimulants which are safe for home use have been discussed in the section on the Home Medicine Cabinet. Refer to p. 238. Care and judgment are necessary in the use of even simple stimulants. No attempt should be made to give fluids of any kind to patients who are not sufficiently conscious to swallow. Neither should stimulants be given when the head has been injured, when

bleeding is profuse or when the face is red and the pulse is strong.

Convulsions.—In every case of convulsions a doctor is needed at the earliest possible moment. Convulsions in adults are very serious. In babies and small children although serious they are less alarming, since they may follow comparatively slight disturbances, particularly disturbances of digestion.

Measures for relieving convulsions of babies and children consist first in keeping the child as quiet as possible, and next in using some means to draw the blood from the brain toward the surface of the body. The child should first be undressed, moving him as little as possible, and put to bed between warm blankets. Cold should be applied to his head by a compress or ice bag, and a hot water bag should be placed near his feet. An enema should then be given. A warm tub bath is sometimes used to apply heat, if the convulsion has not subsided by the time the child is undressed. If the bath is given the temperature of the water should not be above 106°, and should be tested by a thermometer. If no thermometer is available, the water should be tested with the elbow rather than the hand, and cold water should be added if it feels uncomfortably warm. There is great danger of scalding a child during the excitement inevitably caused by a convulsion.

Although haste is needed when a child has convulsions, yet quiet is essential, since the slightest movement tends to increase the convulsions or to start them again. As soon as the convulsions are over the child should be removed from the bath and put to bed between warm blankets. Even after the symptoms have completely subsided, the greatest

care should be taken to keep the child quiet. He should be handled and disturbed as little as possible. The bath should be repeated if convulsions begin again. The doctor, when he comes, will probably order a dose of castor oil. Therefore, if it is impossible to obtain a doctor at once, the dose may be given.

Fainting.—Fainting is a partial or total loss of consciousness due to a diminished supply of blood in the brain. It may follow bleeding, exhaustion from heat, fatigue from prolonged standing, especially in crowded or overheated places, or strong emotional disturbance, such as fear or surprise. It is common in any form of weakness, as when recovering from a severe illness. A person who has not yet recovered his full strength after an illness or injury should be careful not to overdo physically. Persons who faint from trivial causes require the advice of a physician. Symptoms of fainting are pale face and lips, cold perspiration, rapid, feeble pulse and shallow, sighing respiration.

Fainting may often be prevented by lying down or, when this is impossible, by sitting and bending over so that the head is brought between the knees. Should this latter method fail and the individual completely lose consciousness, he should be stretched out at full length with the head low to facilitate the flow of blood to the brain. This position, together with cold fresh air and the application of cold water to the face, will often restore a person who has fainted. Loosen the clothing, especially around the neck, to aid the circulation and to permit free breathing, and open the windows. The inhaling of smelling salts, or aromatic spirits of ammonia, will be a most valuable aid in restoring consciousness. When the patient

is sufficiently conscious to swallow, give a teaspoonful of aromatic spirits of ammonia in half a glass of water and keep him quiet until he has entirely recovered.

A person who is unconscious from any cause always requires immediate attention. In emergency work elevate the patient's head if his face is flushed, and keep it low if his face is pale. Do not try to arouse an unconscious patient by shaking him and calling to him, in the first place because it is useless to do so, and in the second, because consciousness will return spontaneously if his condition improves.

Headache.—Headache is not a disease in itself, but a symptom common to many different disorders. Among the abnormal conditions often causing headaches are fatigue, eyestrain, indigestion, constipation, acute infections, neuralgia, rheumatism, anæmia, and other disorders. The cause should first be found and if possible removed. A physician should be consulted if headaches are of frequent occurrence, but in many cases rest and attention to other hygienic requirements are all that is needed. During an attack of headache a hot foot bath may give relief. A mustard paste, cold applications on the back of the neck or an ice bag or cold compress on the forehead may also be used.

Hiccough.—Hiccough, which is a muscle (diaphragm) spasm is not serious in well people. It is usually possible to stop this spasmodic contraction by holding the breath. For this purpose, slow drinking of water is often effectual. In case the simple method is unsuccessful and the hiccoughing is continued, vomiting caused by salt or mustard in water, as already described, will perhaps stop the trouble.

Medical advice should be obtained if the hiccupping still continues.

Shock.—Shock (in the medical sense of the word) or *collapse*, is a serious condition in which a patient's vitality and all his bodily processes are profoundly depressed. Generally shock occurs only after a severe injury or a long exhausting illness. Since, however, some persons are peculiarly susceptible to it, the possibility of shock must be kept in mind in dealing with even slight injuries. The probability of shock is somewhat increased if patients are allowed to see their own wounds. Injured persons should always sit or lie down while wounds, however slight, are dressed.

Symptoms of shock are pallor, pinched, anxious expression, dilated pupils, cold clammy skin, feeble breathing and rapid, weak pulse. The patient may be mentally normal or irrational or unconscious, but more frequently he appears stupid, and though conscious, he pays no attention to what is going on. Unfortunately this condition is sometimes mistaken for sleepiness, and he is left alone to sleep just when active measures are most needed.

If a patient shows any symptom of shock the doctor should be summoned promptly, but immediate measures should be employed to relieve the condition since it may be critical. It should be remembered however, that panic and confusion may alarm a patient who is conscious, and thus increase the shock. Heat, a position flat on the back, and stimulants are the important things on which to rely for the relief of shock. The patient should be covered warmly and disturbed as little as possible. For this reason, leave on an injured person suffering from shock any clothing that need not be removed and avoid exposure and

any unnecessary moving of the body. The head should be low, and as quickly as possible hot water bags should be placed near but not upon him, with proper care to prevent any danger of burning. If the patient is conscious and able to swallow he should be given hot coffee or aromatic spirits of ammonia, one teaspoonful in half a glass of water. The patient should stay in bed, warmly covered and closely watched for some time after he has apparently recovered.

Helping a patient into bed is not necessarily the first thing to be done in every case of sudden illness. Great harm may be done by the injudicious moving of injured persons, and often it is safer to make a person comfortable with pillows and blankets where he happens to be, certainly until a sufficient number of people can be found to lift him properly. Clothing should be removed carefully, and one should not hesitate to cut it away if undressing is painful or necessitates much moving.

Sleeplessness.—Like headache, sleeplessness has many possible causes, and effective measures for relief consist in finding and removing them. Pain or discomfort of any kind, fatigue, overwork and worry are common causes. Sleeplessness easily becomes a habit that may persist after its cause has been removed. Hence a person who has formed the habit of sleeplessness should patiently strive to break the old habit and to substitute a better. A careful hygienic régime is essential for the patient, as are also exercise in the open air, and cultivation of a hopeful and tranquil spirit. The diet should be liberal, but light and unstimulating. Tea and coffee should be omitted, certainly during the latter part of the day. The

patient should spend rather a dull evening, avoiding excitement and mental exertion that is difficult, even though pleasurable. He should retire early. A warm tub or foot bath, and a hot drink at bed time may help to produce sleep. The feet should be warm. The bedroom should be dark, cool and well ventilated, the bed comfortable and the covers light but warm. The patient should be told that rest is the most important thing for him, and that he should not try too hard to sleep nor worry if unsuccessful. The patient should try to banish from his mind, at bed time, thoughts that are distressing, and even those that are especially interesting. By using patience and persistence most persons can regain the power of sleeping even when habits of sleeplessness have been long established.

Sunstroke and Heat Exhaustion.—Sunstroke and heat exhaustion are both caused by excessive heat either indoors or out, but they differ both in symptoms and in the methods to be used for relief.

Sunstroke or heat stroke, usually begins with acute pain in the head, followed almost immediately by loss of consciousness. The skin is dry and very hot; the face is red or purple; the pupils are dilated; the breathing is difficult; the pulse is slow and the temperature high.

Immediate measures consist in sending for the doctor, removing the patient to a cool place, undressing him and applying cold, especially to the head and spine, or still better, placing him in a very cold bath. The body should be rubbed constantly in the direction of the heart. Stimulants should not be given.

Symptoms of heat exhaustion, on the other hand, resemble those of shock. The doctor should be

summoned, and the patient should be removed to a cool and quiet place, where he should stay warmly covered in a reclining position. Stimulants should be given, hot water bags applied, and the other measures for dealing with shock should be employed.

CONDITIONS IN WHICH THE SKIN IS AFFECTED

Abrasion.—(See “Wounds,” p. 313.)

Burns and Scalds.—Injuries from dry heat are called burns, and those from moist heat are called scalds. Both are painful, and both are dangerous if extensive or deep. Burns and scalds require medical attention if the injured area is extensive, if a large blister is formed, if the skin is destroyed or charred, and if symptoms of shock appear. Shock often follows burns or scalds even when the injury is comparatively slight.

Measures for the relief of slight burns, where the skin is reddened but not destroyed, have for their main object the exclusion of air. One of the following may be applied: baking soda made into a paste with water, cold cream, boracic acid ointment, vaseline, sweet oil or castor oil. If none of these is obtainable, lard, cream, the white of an egg or unsalted butter may be used. Clean old muslin or linen bandaged lightly in place, should be used to cover the burn.

The same measures are used for sunburn, and also for small burns where blisters form. A blister, if it forms, should not be punctured. If it is accidentally broken the skin of the blister should not be removed. It should be remembered that a broken blister is an open wound, and therefore liable to infection.

Insect Bites and Stings.—The sting, if still in the wound, should first be pulled out, and then ammonia

or wet baking soda should be applied to the wound since the poison is generally acid. Applications of cold water, rubbing alcohol and water, or wet salt may relieve the subsequent burning and itching, but ammonia is generally most effective. Subsequent infection of insect bites may usually be prevented by touching the bite with an iodine swab as soon as it is observed and by refraining from scratching.

Ivy Poisoning.—Poison ivy is a creeping or climbing vine commonly found in almost all parts of the United States. The leaf, pointed and slightly notched, is a compound form arranged three on a single stem. Another variety much resembles the common sumac. In autumn the poison ivy turns a beautiful crimson color which attracts the unwary. Everyone should be able to identify these poisonous plants in order to avoid them. Immediate preventive measures after contact with poison ivy will often stop the development of trouble. Scrub thoroughly but carefully with a cloth, a cleansing soap and water the parts which have presumably come in contact with the poison ivy. After the appearance of the inflammation, relief may frequently be obtained through twice daily cleansing with soap and water and frequent application of a wash, such as baking soda and water or boracic acid solution. Scratching increases and spreads the irritation and should be prevented. Tendency to spread and itching will both be decreased by washing off with soap and water any oozing from the affected surfaces. Severe cases, especially those affecting face, neck or hands, should be treated promptly by a physician.

Nettle Rash (Hives).—Hives is an irritating itching skin condition which appears suddenly in the form of

white or pinkish elevations on any part of the body surface. It may usually be prevented by the avoidance of certain foods which with susceptible people seem to cause this trouble. Baking soda, one teaspoon to a glass of water taken internally, is usually helpful, and salts—either Epsom or Rochelle—will assist in ridding the body of the offending food. To allay the itching and burning, a paste made from baking soda and water, or the application of rubbing alcohol will usually be effective.

Prickly Heat.—Prickly heat, which affects babies and children and less frequently adults, is a harrassing eruption caused by heat and moisture and aggravated by heavy clothing, particularly underclothing. It may be prevented to some extent by the means necessary to keep the skin dry, cool and clean. Frequent bathing, clean, light-weight, scanty clothing, and the avoidance of heating drinks or foods or exercise which causes sweating will be helpful. The irritation may be somewhat relieved by a salt bath or by the application of wet baking soda. Bathing the skin with about one part of rubbing alcohol to three of water and using after the bath a powder made of two parts of starch to one of boracic acid, or any good talcum powder will usually be found soothing. Zinc stearate powder should not be used for the baby since serious results frequently occur from its being accidentally inhaled.

Wounds.—In a discussion of wounds, *bleeding* should first be considered. In most cases, bleeding can be stopped by elevating the injured part and applying pressure over the wound. In case of any serious bleeding, as from a severed artery or from an extensive wound, the immediate need is to stop this

loss of blood. A physician should be called, and in the meantime every effort should be made to stanch the flow.

One should remember however that loss of blood is not the only danger presented by an open wound, for pus producing germs, if they make their entrance, may cause an *infection* which in its final result will be most serious. Hence, in dealing with an open wound of any sort, every precaution should be used to prevent the possibility of contamination.

Slight wounds are usually cared for in the home. Loss of blood from such wounds is seldom so serious as the danger of infection. In fact, small cuts, pin pricks, scratches etc., should be encouraged to bleed by pressure near the wound in order to expel the germs that may have entered. After the wound has bled a little, tincture of iodine should be applied as before described by means of a cotton swab both to the wound itself and also to the immediately surrounding skin.

After the wound has thus been disinfected it should be covered with a sterile dressing. A sterile dressing is material in which all germ or bacterial life has been destroyed. Gauze from a sealed First Aid dressing or from a sealed packet of sterile gauze should be used for this compress, or gauze may be cut from a sterile bandage. The compress serves two purposes. It protects the wound from infection, and if applied with pressure it usually checks further bleeding.

Abrasion.—An abrasion is a name given to injuries where the surface of the skin has been removed. They include the scraped arms and legs which are common accidents in childhood. In order to dress an abrasion, particles of dirt should first be removed by gently washing with a cleansing soap and warm, boiled water.

In doing this, care should be taken that the hands of the attendant, the soap, the cloth, and any utensil used are entirely clean. The surface may be lightly patted dry with a sterile or entirely clean cloth. It may then be dealt with in the same manner as any other skin wound by the application of iodine, a sterile dressing and a secure bandage. If the abrasion is fairly large, a hot wet dressing made from boric acid solution is preferable.

If heat, swelling, redness or pain, the signs of inflammation frequently resulting from *infection*, should, after a day or two, develop in a wound, a doctor should be consulted.

Not a minute should be lost if the patient has a chill or if red streaks appear extending from the wound in the general direction of the heart. Until the doctor comes the patient should be made as comfortable as possible in bed with the wounded part well supported in an elevated position. He should have absolute rest and quiet and should drink freely water and other liquids to aid in elimination.

Several *general directions* should be observed in dressing wounds. In the first place the mouth, which is full of germs, is not a good place for cut fingers. Moreover, wounds should not be touched by anything, especially the fingers, either washed or unwashed, nor should the scissors, fingers or other object be allowed to touch the surface of the dressing that is to be placed directly upon a wound. Unless they contain gross dirt, wounds should not be washed with water, since washing introduces another chance of infection and accomplishes nothing except a tidy appearance, which is not here the point of greatest importance. Also any wound if washed should be thoroughly dried,

for iodine, if to be applied, is more irritating and less effective when used upon the wet skin than when used on the dry skin. Furthermore, it should be remembered that exposure to the air will not infect a wound, and therefore time should be taken to find a suitable dressing. When a sterile dressing is quite impossible to obtain, the cleanest material available should be used. One of the best substitutes for a sterile dressing is the inner surface of a handkerchief or a napkin that has not previously been unfolded since it was ironed. It is a common mistake to tie up a wound in the first article presented, which is usually a generous bystander's soiled handkerchief. The same precautions in regard to cleanliness should be taken in dressing wounds that are known to be contaminated, since even into an infected wound it is possible to introduce more germs and perhaps more harmful ones.

OTHER EMERGENCIES

Bruises.—Bruises need no attention unless they are extensive or painful. The skin should be kept clean and if possible unbroken, since injured tissues are less resistant to infection than tissues in their normal state. Applications of cold water or of equal parts of cold water and rubbing alcohol may relieve the pain. An ice cap, if available, may be applied.

Chills.—Chills may be an indication of the presence of an infection in the body. They may also result from exposure to cold, or less often from excessive nervous excitement. Many of the communicable diseases begin with a chill. The temperature should be taken, since fever and chill together probably indicate invasion by bacteria, or in other words, an infection.

When there is any possibility that the chill is caused by infection, the physician should be promptly called. We may say that in all cases in which exposure to cold or nervous excitement is not known to be the direct cause of the condition, safety demands a physician's advice. In any case, measures for immediate relief consist in putting the patient to bed, applying warm blankets, a hot water bottle to the feet and giving hot drinks, such as hot milk, hot lemonade or coffee. If the chill is caused by exposure or if it is of nervous origin, a warm tub bath before going to bed will be beneficial.

Croup.—Croup is caused by a spasmodic closure of the larynx so that breathing is impeded. The child who develops croup may have a slight cold, but frequently shows no symptoms until he wakes in the night with a hoarse ringing cough and difficult breathing. Croup, though often distressing, is seldom serious, even when the symptoms are so severe that the child appears to be partly suffocated.

Whenever a child develops a croupy cough his throat should be examined. A physician should be summoned if the throat is red and especially if the redness is associated with whitish spots on the throat or tonsils, or with rise in temperature. Cases of diphtheria have been overlooked by neglecting such symptoms.

The physician should be consulted also in order that he may correct any wrong condition and thus, if possible, prevent repeated attacks. The prevention of colds and the building up of the child's general resistance by out of door life, by proper clothing and by protection against extremes of weather conditions, will often do much to assist in overcoming a tendency

to croup. In an attack, the child should be made to vomit freely by giving warm salt water or $\frac{1}{4}$ teaspoonful of mustard in a glass of warm water. Perhaps however the remedy giving quickest results is a teaspoonful of syrup of ipecac followed by warm water, or ten drops of ipecac every fifteen minutes until the child vomits freely.

An ordinary, cleansing enema of warm water will often help to secure relaxation. Hot applications, either dry or moist, may be used on throat or chest. However, a cold compress or an ice cap is perhaps even more effective and more often recommended for this purpose. In many families in which a child shows a tendency to croup, the purchase of an ice collar or cap, which is then at hand ready for prompt application, has greatly helped in solving the problem of immediate relief.

Nosebleed.—Nosebleed usually stops of itself, but if it is obstinate the patient should sit erect with the head back, and cold compresses should be placed on the nose and at the back of the neck. Pressure should be made on the upper lip by means of the fingers, or by a firm roll of paper or cotton placed under the upper lip. These methods should be continued for ten or fifteen minutes, or until bleeding stops. If the bleeding persists a doctor is needed.

Menstruation.—**Painful or Profuse.**—"Any marked increase, whether by amount, duration or shortening of the interval between the periods, ought to receive attention and hence should be brought to the physician's notice." (Latimer.) As for smaller discomforts, correct living, regular hours, sufficient rest, exercise to keep up muscle tone, proper clothing and diet and correction of constipation will do much to bring

about a lasting relief. Immediate relief consists in rest in bed and mental as well as physical relaxation. Pain may usually be relieved by warmth, hot drinks and application of heat to feet and back. A hot foot bath to which mustard may be added is also helpful.

The practice of resorting to the use of patent remedies or of alcoholic liquors is not only futile and a waste of time and money, but is often accompanied by dangerous results. Aspirin, frequently used, does not correct the cause of the trouble and may even involve harm.

Snake Bites.—Snake bites are uncommon in most sections of this country. The rattlesnake, the copper-head, the water moccasin and the coral are the only

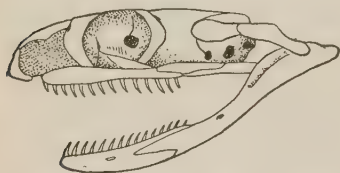


FIG. 34.—Profile view of skull of non-poisonous snake. (*By courtesy of United States National Museum.*)



FIG. 35.—Profile view of skull of poisonous snake. (*By courtesy of United States National Museum.*)

snakes to be feared in the United States. Even in localities where poisonous snakes are common, injury may usually be prevented by the wearing of high boots or leggings by day and by not sleeping on the ground. In case of a snake bite, it should first be determined whether the bite is from a poisonous or from a non-poisonous snake. The bite of the poisonous snake will show only two punctures in the skin. The bite of the non-poisonous snake will ordinarily show two series of tooth marks.

When the two punctures showing a bite by a poisonous snake are found, proper treatment applied

promptly is of advantage. The assistance of the physician should be secured at once. It is probably safer to take no step whatever toward relief before his arrival than to employ what may be unwise measures. Emergency assistance can be rendered in three ways:

a. For a bite on a leg or arm, encircle the limb with a twisted handkerchief or a stout bandage between the bite and the main part of the body. Tie and twist tightly enough to shut off the circulation and thus to delay absorption of poison. This bandage must not be left in place more than twenty minutes at one time, since by entirely cutting off the circulation it may cause permanent injury greater than would result from the snake bite itself.

b. The patient may suffer severely from shock. Possibly in most cases the suffering from shock due to fright is greater than the effect of the poison itself. A most important first aid measure is then the reassuring of the patient. A serene manner and absence of excitement on the part of the attendant will do much to calm the fears and to restore the composure of the sufferer. Every effort should be exerted to give mental composure. Administration of alcoholic liquor is not only unnecessary as a first aid measure, but harmful. If the patient is faint, warmth, a recumbent position and a whiff of aromatic spirits of ammonia will probably contribute to his relief.

c. The punctures of the bite constitute a skin wound and in this regard may be dealt with in the usual way. In addition, to draw out the poison, the bitten part may be sucked by a person who has no mouth wound. The poison should not be swallowed. It will be helpful also, before the physician arrives, to induce free perspiration and kidney action by a

hot bath and by administering quantities of hot drinking water.

Sore Throat.—Sore throat is a serious condition. Its treatment requires careful consideration and usually trained medical advice. A seemingly slight sore throat may be the first symptom of diphtheria. For this reason it should never be disregarded nor treated as a trivial matter, since in the presence of diphtheria immediate attention is demanded. In frequent attacks of sore throat, the physician should be consulted as to the means of correcting this condition. Continued or repeated attacks of sore throat may and too frequently do lead to the serious joint conditions known as rheumatism or to acute heart or kidney disease, any one of which conditions may cause permanent crippling of physical strength.

Sore throat, either of children or of adults, is the known and preventable cause not only of suffering and misery but also of a great amount of life-long injury to health and usefulness.

Sprains.—A sprain is caused by twisting, stretching, or tearing the tissues about a joint. The first sharp pain comes from the injury to the tissues. Subsequent pain is caused by the pressure of accumulated fluid. The other symptoms are those characteristic of inflammation.

Injuries to joints should never be neglected. Severe sprains always require medical attention,—both because of the gravity of the conditions frequently resulting from the sprain itself, and because in addition to the sprain a bone may be broken. A severely sprained joint should be elevated, relieved with hot or cold applications, and kept at rest until it has been examined by a physician.

When a sprain is slight, the affected part should be elevated and kept at rest for the first twenty-four hours. Either heat or cold should be applied, or heat and cold alternately. An effective measure is soaking the part in hot water and afterward holding it under the cold water tap. Gentle rubbing toward the body with a circular motion helps to reduce the swelling.

QUESTIONS AND EXERCISES

1. What may be used to relieve colic of babies? Adults?
2. What should be done for diarrhea?
3. What simple home measures will cause vomiting?
4. Why is prompt medical attention important in dealing with disorders of the ears?
5. Show the method of removing a foreign body from the eye.
6. What are the causes of styes?
7. What should be done for a baby in a convulsion? An adult?
8. Show the method of dealing with a fainting person.
9. Give the common causes and show what may be done for immediate relief of headache.
10. Give measures of relief for sleeplessness.
11. Show the method of caring for a slight skin wound; skinned knee; severe sunburn; mosquito bite; slight ivy poisoning on the leg; hives; prickly heat.
12. What signs show that a wound is infected? What should be done?
13. Show method of dealing with nose bleed.
14. What should be done in case of snake bite?
15. What are the dangers from sore throat? What should be done?

FOR FURTHER READING

American Red Cross Text Book on First Aid—Charles Lynch
 Immediate Care of the Injured—Albert S. Morrow.
 Prompt Aid to the Injured—Alvah H. Doty

CHAPTER XVIII

COMMUNITY HEALTH

The community has as one of its greatest responsibilities, the provision of a healthful environment for all its people. Such an environment because of the interdependence of present civilized life, can be produced and maintained only through the intelligent action of the organized civic forces. In order to accomplish this purpose of promoting the general welfare and of safeguarding life and happiness definite responsibility has been delegated to civic authority. This responsibility includes the control and regulation of many factors affecting sanitation, health and safety. Some of these, as closely affecting the individual and the home, are here presented.

Sanitary Care of Food.—It is of great importance that the community authority shall provide for its citizens a safe *food supply*. For this purpose all markets, bakeries, groceries, stores, shops and storage houses are closely supervised and are required to protect food according to sanitary regulations. All food should be kept clean, and particularly if it is consumed in an uncooked state, it should be protected from dust, vermin, flies and other insects, as well as from promiscuous handling. Food factories and especially all business having to do with the preparation, storage or sale of meat, poultry, game or fish, are subject to rigid inspection. In fact in most communi-

ties such businesses are allowed to operate only under license secured from the local Board of Health.

All hotels and eating houses, and all places dispensing food or cold drinks are regulated by law. Their method of storage and of handling of food should be safeguarded. All dishes and utensils should be thoroughly cleansed. The employees and food handlers also are subject to regulation and in some communities to regular examination to insure their freedom from tuberculosis and other communicable diseases. Such action intelligently and persistently enforced, together with the cooperation of the food handlers and dispensers themselves, can do much to protect the health of the community.

The protection of the *milk supply* is most necessary in the safeguarding of human lives. Disease germs make a rapid growth in warm milk. Also the amount of human handling necessitated, renders milk peculiarly liable to contamination. Furthermore, the cattle from which the milk comes may be infected with disease communicable to man, particularly with tuberculosis. The first safeguard is inspection of the cattle themselves, and in many communities it is required that all milk offered for sale shall come from tuberculin tested herds. Such milk is thus protected at least against tuberculosis. Inspection of dairies and dairy employees, sterilization of bottles, rapid cooling and adequate refrigeration are all necessary. As the public mind has become informed in regard to the dangers from contaminated and dirty milk, particularly as a cause of infant deaths from diarrhea diseases, more and more have patronage and approval turned to the dairies upon the safety of whose supply dependence may be placed. Properly pasteurized milk is in general safest. When not bought in

this form, it should be pasteurized or boiled in the home. See p. 335.

The *water supply* of a community should be pure and sufficient. Adequate means for storage and purification are therefore necessary. It is also necessary that it be strictly safeguarded against pollution by sewage or any form of body wastes. The accomplishment of these two most necessary ends requires accurate engineering knowledge and the skill of the expert trained and experienced in sanitation. Every community should use whatever means are necessary in order to safeguard its population in these regards.

Ice of a safe quality should be available in amount sufficient to meet the demand in a community. Freezing, it will be remembered, does not kill germ life. For this reason ice manufactured under sanitary conditions is safest. Its method of handling also is important as a means of guarding against pollution by contact.

Public Conveniences.—Sanitary drinking fountains are provided in all modern public buildings, in parks and playgrounds and at frequent intervals on the streets of many cities. Public drinking fountains should be carefully selected and regulated if they are to be entirely safe. Fountains which throw the jet of water at a side angle rather than perpendicularly are probably most dependable. With any fountain there should be sufficient power to throw the stream of water to such a height that there is no danger that a thoughtless individual will touch the base with the mouth. In playgrounds and parks frequented by small children, it is also desirable that fountains be placed low enough for their use or that railings be provided on which they may stand in order to drink.

Public toilets and lavatories at convenient locations, plainly marked, well protected, and kept in sanitary condition are a necessity. The cleanliness and proper care of these cannot be too greatly emphasized. Perhaps the self-flushing type of toilet is in many instances the most desirable. Many communities now take much civic pride in providing both for their own citizens and for travelers, suitable public toilets and lavatories, safe, sanitary and clean.

Provision for Cleanliness.—Provision for cleanliness in a great number of ways is necessary not only directly for health but also for pleasurable living, which indirectly builds for health. Such provision is usually made in any community through specific local ordinances. Cleanliness is highly desirable; of streets, of alleys, of yards, of public grounds, in fact of the entire community. For this purpose adequate means of garbage disposal is necessary as well as means for disposal of the many other forms of waste. City dumping places are unnecessary, uneconomical, and highly undesirable. The elimination of dust by sprinkling and by sodding bare areas, the abating of the coal smoke nuisance and the reduction of street noises to a minimum are all possible through the application of present knowledge. Such accomplishment will beyond a doubt add greatly to the satisfaction and pleasure of community dwellers and for this reason it constitutes a means of promoting health. A clean city with proper sanitary regulation will have no difficulty from the fly nuisance. This is automatically eliminated under such a regime. “Clean up” and “Swat the Fly” campaigns no doubt accomplish much good, but lasting results come only from a year round program for cleanliness and health.

Protection of Life and Health.—The community has a definite responsibility for the safety of its citizens. Streets should be properly lighted. Such traffic regulations as are necessary to safeguard the lives both of motorists and of pedestrians should be made and rigidly enforced. A carefully planned system is necessary to avoid confusion. Adequate fire and police protection are required in every community. Firemen and policemen constitute a trained group of public protectors who in the performance of their many and varied duties are of inestimable value to the safety and the happiness of the community.

It is necessary for every community to make provision for the care of its sick and injured. *Hospital facilities* sufficient to meet the need are required. Visiting care for those not requiring hospital care is also desirable. This has been supplied in many communities by a Visiting Nurse Association. In more sparsely settled districts such a service may include several smaller communities or an entire county.

Moreover protection of life and health necessitates authorized control of communicable disease. Systematic intelligent reporting and quarantine are necessary. Many communities go still further and offer protection by making available to all immunization against smallpox, typhoid fever and diphtheria. Special facilities also should be provided for early diagnosis of tuberculosis and for subsequent care and supervision. The National Tuberculosis Association with its well organized state units has been of the greatest assistance to communities throughout the country in providing needed means for the stamping out of tuberculosis. It may be mentioned here that other

national organizations also are prepared to give local assistance in the solving of various health problems.

Every community should take an active interest in reducing its mortality from all of these various preventable causes. Accident and communicable disease have been mentioned. The saving of infant lives is a matter of very great importance. Provision should be made whereby every mother shall have opportunity to seek advice before her child is born and to learn how to care for it thereafter. The saving of infant lives and the rearing of healthy children as stated before require the cooperation of all individual and community forces.

Recreation.—Much has been said of the responsibility of the community in conserving life, health and happiness in direct ways. In this age of crowding activity the complexity of which makes necessary constant, minute adjustment of mind and body, of at least equal importance is community provision for recreation and play. That community builds a sure foundation for its future which develops a well planned system of playgrounds, parks and public gardens as well as accessible facilities for sports such as swimming, golf, tennis, etc.

The Board of Health.—The responsibilities of the community for the health of its people are many and far reaching. The many sided activities necessary for the promotion of health and the constant close supervision necessary to prevent the encroachment of disease can be carried on only through the untiring efforts of the local Board of Health. By the intelligent application of known methods for the promotion of health and the prevention of disease, the welfare of the community can be safeguarded. However, in

order to bring about these results, properly trained executives are required. Moreover it is necessary that to the Board of Health shall be delegated power to enforce health regulations and further that the financial investment in the work of public health be sufficient to cover the need.

Individual Cooperation.—Numerous details of health protection which the community owes to its people have been mentioned. However, it is well to remember that the community is made up of individuals. These individuals through the exercise of civic rights make the laws which govern their environment. These individuals create public sentiment which demands healthful conditions or which permits disease and filth. Furthermore it is only by individual cooperation that the public spirit of conformity to law and order can be built up. Individual cooperation includes observance of those traffic regulations necessary for the protection of life and limb. It entails the conscientious protection of associates from even our own infections. Broadly speaking, individual cooperation takes upon itself the whole souled and intelligent performance in every day life of those essential habits and principles which make possible complete living not only for the individual but also for his fellow man.

QUESTIONS AND EXERCISES

1. On whom does the responsibility for the health of the community rest—and what does this responsibility include?
2. How may a safe food supply be assured?
3. What are some ways of safeguarding the milk supply?
4. What are some necessary steps to take in regard to the community water supply?
5. What are some of the requisites of a public drinking fountain?

6. Does your city or town provide adequate public toilet and lavatory facilities and, if so, what care should be taken of them?
7. What measures may be taken to insure community cleanliness?
8. What are some of the contributing causes to the death rate of a community, and how may the mortality be reduced?
9. In what ways may recreation be provided?
10. What are some of the functions of a Board of Health?
11. How may the individual aid in the promotion of community health?

FOR FURTHER READING

Clean Water and How to Get It—A. Hazen.

Community Health Problem, The—A. C. Burnham.

Evolution and Significance of the Public Health Campaign—C.-E. A. Winslow.

Home and Community Hygiene—J. Broadhurst.

Market Milk—E. Kelley and C. E. Clement.

National Health Series:

iv. Community Health—D. B. Armstrong.

x. The Quest for Health—James A. Tobey.

Pamphlets from U. S. Public Health Service, Washington, D. C.

Primer of Sanitation—John W. Ritchie.

Public Health in the United States—H. H. Moore.

Value of Pure Water, The—G. C. Whipple.

Walter Reed and Yellow Fever—H. A. Kelly.

Yellow Fever and Sanitation—M. D. Gorgas and B. J. Hendrick.

APPENDIX I

WEIGHT-HEIGHT-AGE TABLES FOR GIRLS*
From Birth to School Age

Height (inches)	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.	60 mos.	72 mos.
20	8											
21	9	10										
22	10	11										
23	11	12	13									
24	12	13	14	14								
25	13	14	15	15								
26		15	16	17	17							
27		16	17	18	18							
28			19	19	19	19						
29			19	20	20	20						
30			21	21	21	21	21					
31				22	22	23	23	23				
32					23	24	24	24	25			
33						25	25	25	26			
34						26	26	26	27			
35						29	29	29	29	29		
36							30	30	30	30	31	
37							31	31	31	31	32	
38								33	33	33	33	
39								34	34	34	34	34
40									35	36	36	36
41										37	37	37
42										39	39	39
43										40	41	41
44											42	42
45												45
46												47
47												50
48												52

* Prepared by Robert M. Woodbury, Ph. D.

Children's Bureau, U. S. Department of Labor.

Weight is stated to the nearest pound; height to the nearest inch; age to the nearest month.

Weights of children under 35 inches were taken without clothing; those of children above 35 inches with clothing (shoes, coat and sweater removed).

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AMERICAN CHILD HEALTH ASSOCIATION

370 Seventh Avenue, New York City

WEIGHT-HEIGHT-AGE TABLES FOR BOYS*
From Birth to School Age

Height, inches	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.	60 mos.	72 mos.
20	8											
21	9	10										
22	10	11										
23	11	12	13									
24	12	13	14									
25	13	14	15	16								
26		15	17	17	18							
27		16	18	18	19							
28			19	19	20	20						
29			20	21	21	21						
30			22	22	22	22	22					
31				23	23	23	23	24				
32				24	24	24	25	25				
33					26	26	26	26	26			
34						27	27	27	27			
35						29	29	29	29	29		
36							30	31	31	31		
37							32	32	32	32	32	
38								33	33	33	34	
39								35	35	35	35	
40									36	36	36	36
41										38	38	38
42										39	39	39
43										41	41	41
44											43	43
45											45	45
46												48
47												50
48												52
49												55

* Prepared by Robert M. Woodbury, Ph. D.

Children's Bureau U. S. Department of Labor.

Weighing children is a means of ascertaining their rate of growth. All children should make a regular annual gain. These tables should be used as a means of interesting parents in their children's growth.

Lay infant on table on which has been placed an accurate measure. Stand child with heels and shoulders against a wall upon which has been marked or pasted an accurate measure.

Encourage the annual physical examination of every child by a physician.

WEIGHT-HEIGHT-AGE TABLE FOR GIRLS OF SCHOOL AGE**

Height (inches)	Average weight for height (lbs.)	5 yrs.	6 yrs.	7 yrs.	8 yrs.	9 yrs.	10 yrs.	11 yrs.	12 yrs.	13 yrs.	14 yrs.	15 yrs.	16 yrs.	17 yrs.	18 yrs.	19 yrs.
38	33	33	33													
39	34	34	34													
40	36	36	36	36*												
41	37	37	37	37*												
42	39	39	39	39*												
43	41	41	41	41	41*											
44	42	42	42	42	42*											
45	45	45	45	45	45	45*										
46	47	47*	47	47	48	48*										
47	50	49*	50	50	50	50	50*									
48	52		52	52	52	52	53*	53*								
49	55		54	54	55	55	56	56*								
50	58		56*	56	57	58	59	61	62*							
51	61			59	60	61	61	63	65							
52	64			63*	64	64	64	65	67							
53	68			66*	67	67	68	68	69	71*						
54	71				69	70	70	71	71	73*						
55	75				72*	74	74	74	75	77	78*					
56	79					76	78	78	79	81	83*					
57	84					80*	82	82	82	84	88	92*				
58	89						84	86	86	88	93	96*	101*			
59	95						87	90	90	92	96	100	103*	104*		
60	101						91*	95	95	97	101	105	108	109	111*	
61	108							99	100	101	105	108	112	113	116	
62	114							104*	105	106	109	113	115	117	118	
63	118								110	110	112	116	117	119	120	
64	121								114*	115	117	119	120	122	123	
65	125								118*	120	121	122	123	125	126	
66	129									124	124	125	128	129	130	
67	133									128*	130	131	133	133	135	
68	138									131*	133	135	136	138	138	
69	142										135*	137*	138*	140*	142*	
70	144										136*	138*	140*	142*	144*	
71	145										138*	140*	142*	144*	145*	
Age-years		6	7	8	9	10	11	12	13	14	15	16	17	18		
Average Height (inches):																
Short.....		43	45	47	49	50	52	54	57	59	60	61	61	61		
Medium.....		45	47	50	52	54	56	58	60	62	63	64	64	64		
Tall.....		47	50	53	55	57	59	62	64	66	66	67	67	67		
Average Annual gain (lbs.):																
Short.....		4	4	4	5	6	6	10	13	10	7	2	1	1		
Medium.....		5	5	6	7	8	10	13	10	6	4	3	1	1		
Tall.....		6	8	8	9	11	13	9	8	4	4	1	1	1		

NOTE.*—In order to extend the range of the tables so as to include weights of children who are taller or shorter than those in these groups there have been added as starred figures estimated weights. All the other weights represent averages for each inch in height and age of the children observed in this study.

** Prepared by Bird T. Baldwin, Ph. D., Iowa Child Welfare Research Station, State University of Iowa, and Thomas D. Wood, M. D., Columbia University, New York City.

WEIGHT-HEIGHT-AGE TABLE FOR BOYS OF SCHOOL AGE*

Height (inches)	Average weight for height (lbs.)	5 yrs.	6 yrs.	7 yrs.	8 yrs.	9 yrs.	10 yrs.	11 yrs.	12 yrs.	13 yrs.	14 yrs.	15 yrs.	16 yrs.	17 yrs.	18 yrs.	19 yrs.
38	34	34	34*													
39	35	35	35													
40	36	36	36*													
41	38	38	38	38*												
42	39	39	39	39*	39*											
43	41	41	41	41*	41*											
44	44	44	44	44	44*											
45	46	46	46	46	46*	46*										
46	48	48	48	48	48*	48*										
47	50	50	50	50	50*	50*	50*									
48	53	52	53	53	53	53	53*									
49	55	55	55	55	55	55	55	55*								
50	58		57*	58	58	58	58	58*	58*							
51	61			61	61	61	61	61	61*							
52	64			63	64	64	64	64	64	64*						
53	68			66*	67	67	67	67	68	68*						
54	71				70	70	70	70	71	71	72*					
55	74				72*	72	73	73	74	74	74*					
56	78				75*	76	77	77	77	78	78	80*				
57	82					79*	80	81	81	82	83	83*				
58	85					83*	84	85	85	86	87					
59	89						87	88	89	90	90	90				
60	94						91*	92	92	93	94	95	96			
61	99							95	96	97	99	100	103	106*		
62	104							100*	101	102	103	104	107	111	116*	
63	111							105*	106	107	108	110	113	118	123	127*
64	117								109	111	113	115	117	121	126	130*
65	123								114*	117	118	120	122	127	131	134
66	129									119	122	125	128	132	136	139
67	133										124*	128	130	134	139	142
68	139											134	134	137	141	143
69	144											137	139	143	146	149
70	147											143	144	145	148	151
71	152											148*	150	151	152	154
72	157												153	155	156	158
73	163												157*	160	162	164
74	169												160*	164	168	171

Age-years	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Average height (inches):														
Short.....	43	45	47	49	51	53	54	56	58	60	62	64	65	65
Medium.....	46	48	50	52	54	56	58	60	63	65	67	68	69	69
Tall.....	49	51	53	55	57	59	61	64	67	70	72	72	73	73
Average annual gain (lbs.):														
Short.....	3	4	5	5	5	4	8	9	11	14	13	7	3	
Medium.....	4	5	6	6	6	7	9	11	15	11	8	4	3	
Tall.....	5	7	7	7	7	8	12	16	11	9	7	3	4	

* Prepared by Bird T. Baldwin, Ph. D., Iowa Child Welfare Research Station, State University of Iowa, and Thomas D. Wood, M. D., Columbia University, New York City.

TABLE OF AVERAGE HEIGHTS AND WEIGHTS—MEN

Age	5 ft. 0 in.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft. 0 in.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.
15	107	109	112	115	118	122	126	130	134	138	142	147	152	157	162	167	172	177
20	117	119	122	125	128	132	136	140	144	148	152	156	161	166	171	176	181	188
25	122	124	126	129	133	137	141	145	149	153	157	162	167	173	179	184	189	194
30	126	128	130	133	136	140	144	148	152	156	161	166	172	178	184	190	196	201
35	128	130	132	135	138	142	146	150	155	160	165	170	176	182	189	195	201	207
40	131	133	135	138	141	145	149	153	158	163	168	174	180	186	193	200	206	212
45	133	135	137	140	143	147	151	155	160	165	170	176	182	188	195	202	209	215
50	134	136	138	141	144	148	152	156	161	166	171	177	183	190	197	204	211	217
55	135	137	139	142	145	149	153	158	163	168	173	178	184	191	198	205	212	219

TABLE OF AVERAGE HEIGHTS AND WEIGHTS—WOMEN

Age	4 ft. 8 in.	4 ft. 9 in.	4 ft. 10 in.	4 ft. 11 in.	5 ft. 0 in.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft. 0 in.
15	101	103	105	106	107	109	112	115	118	122	126	130	134	138	142	147	152
20	106	108	110	112	114	116	119	122	125	128	132	136	140	143	147	151	156
25	109	111	113	115	117	119	121	124	128	131	135	139	143	147	151	154	158
30	112	114	116	118	120	122	124	127	131	134	138	142	146	150	154	157	161
35	115	117	119	121	123	125	127	130	134	138	142	146	150	154	157	160	163
40	119	121	123	125	127	129	132	135	138	141	145	149	153	157	161	164	167
45	122	124	126	128	130	132	135	138	141	145	149	153	157	161	164	168	171
50	125	127	129	131	133	135	138	141	144	148	152	156	161	165	169	173	176
55	125	127	129	131	133	135	138	141	144	148	153	158	163	167	171	174	177

Height and weight taken with shoes on and coat and vest or waist off.
Prepared by LIFE EXTENSION INSTITUTE.

APPENDIX II

Instructions to Parents on the Care of Children's Hair and Scalp

Children affected with vermin of the head are excluded from school. The following directions will cure the condition:

Mix one-half pint of sweet oil and one-half pint of kerosene oil. Shake the mixture well and saturate the hair with the mixture. Then wrap the head in a large bath towel or rubber cap so that the head is entirely covered; the head must remain covered from six to eight hours.

(Tincture of larkspur may be used instead of oil mixture. The directions for use are the same.)

After removing the towel, the head should be shampooed as follows:

To two quarts of warm water add one teaspoonful of sodium carbonate (washing soda). Wet the hair with this solution and then apply Castile soap and rub the head thoroughly about ten minutes. Wash the soap out of the hair with repeated washings of clear warm water. Dry the hair thoroughly.

Nits: If the head is shampooed regularly each week as above described, it will cure and prevent the condition of "nits."

DEPARTMENT OF HEALTH
CITY OF NEW YORK

APPENDIX III

To Pasteurize One Quart of Milk or Prepared Infant Feedings

Take pail deep enough so that water in it will reach to the neck of milk bottle. Put small tin pan or saucer upside down on the bottom of pail, and set bottle of milk on this. Bottles of prepared feedings, however, should be placed in wire basket. Pour water into pail up to level of milk. Place pail on stove and as soon as water boils remove pail, cover and let it stand for half hour. Then take bottle out and let it cool gradually by letting cold water run over it or by placing it in cool water. Milk must be kept very cold until used.

GLOSSARY

(For complete definitions of the following words the student is referred to general and scientific dictionaries)

A

Antiseptic.—A substance which prevents or hinders the growth of micro-organisms.

Antitoxin.—A substance that neutralizes the action of a toxin.

Arteriosclerosis.—Increase of connective tissue in the walls of arteries.

Aseptic.—Free from living germs.

Axilla.—The armpit.

B

Bacillus (pl. bacilli).—A rod-shaped or elongated bacterium.

Bacterial.—Relating to bacteria.

Bacteriological.—Relating to bacteriology.

Bacteriology.—The science dealing with micro-organisms.

Bacterium (pl. bacteria).—A unicellular vegetable micro-organism.

C

Carrier.—An apparently healthy person who harbors pathogenic germs in his body.

Calorie.—The amount of heat required to raise the temperature of 1 kilogram of water to 1° C.

Cathartic.—An agent causing active movement of the bowels.

Clinical.—Pertaining to a sick bed.

Counter-Irritant.—A substance or agent which if applied to the skin causes irritation and thereby relieves an abnormal condition in another part of the body.

D

Defecation.—The act of emptying the bowels.

Degeneration.—A deterioration in cells or tissues of the body so that they become less able to perform their proper functions.

Degenerative.—Pertaining to degeneration.

Deodorant.—An agent that destroys odors.

Digestive Tract.—The entire alimentary canal, including the mouth, oesophagus, stomach, and the small and large intestines.

Disinfect.—To destroy the germs of disease.

Disinfectant.—An agent that destroys the germs of disease.

Disinfection.—The process of destroying the germs of disease.

E

Elimination.—Removal of waste material from the body.

Emetic.—A substance used to induce vomiting.

Enema.—An injection of fluid into the rectum.

Excrete.—To throw out.

F

Fecal.—Pertaining to feces.

Feces.—Matter discharged from the bowels; bowel movement.

Fermentation.—Decomposition produced in an organic substance by the action of certain living agents.

Flex.—To bend at a joint.

Focal.—Confined to a limited area.

Fomentation.—See **Stupe**.

G

Gastric Juice.—The fluid secreted by the glands of the stomach.

Germ.—A minute unicellular organism, either animal or vegetable; a micro-organism; a microbe.

Germicide.—An agent having the power to kill germs.

H

Heredity.—Transmission of physical or mental characteristics from parent to offspring.

Hygiene.—Sanitary science.

I

Immune.—Not susceptible to a particular disease; also, a person who is not susceptible to a particular disease.

Immunity.—The state in which an individual is not susceptible to a particular disease.

Immunize.—To render immune

Incubation.—The interval between exposure to an infectious disease and the first appearance of symptoms.

Infect.—To communicate disease germs.

Infection.—An agent by which disease may be communicated from one individual to another; also, an infectious disease.

Inoculate.—To introduce any biological product directly into the tissues of the body.

Intestinal Tract.—The small and large intestines.

L

Lesion.—Any derangement in the function or structure of an organ or tissue.

M

Micro-organism.—See **Germ**.

Mucus.—The substance secreted by mucous membranes.

Mucous Membranes.—The membranes lining certain cavities of the body, especially the digestive and respiratory tracts.

Nutrition.—The process by which growth is promoted and waste repaired in living organisms.

P

Parasite.—An individual that lives in or upon another individual.

Pasteurize.—To subject milk to a temperature of 140°–145° F. for thirty minutes.

Pathogenic.—Disease-producing.

Peristalsis.—Movement of the intestine which propels the contents outward.

Pertussis.—Whooping-cough.

Proteid.—One of the complex nitrogenous substances constituting the essential parts of animal and vegetable tissues.

Pus.—The fluid product of inflammation; matter.

R

Resistance.—See **Immunity**.

Respiratory Tract.—The air passages, including the nose, mouth, larynx, trachea, bronchial tubes and lungs.

S

Saliva.—Fluid secreted by the glands of the mouth; spittle.

Segregation.—Setting aside—isolating.

Septic.—Putrifying or decomposing; infected by pus-producing bacteria.

Sequela.—A disease or unhealthy condition following another disease or unhealthy condition.

Serum.—The fluid which separates from the clot after blood has coagulated; especially, that containing an antitoxin.

Sewage.—Any substance containing urine or fecal matter; also, the substance which passes through sewers.

Sputum.—Spit; expectoration.

Sterile.—Free from living germs; aseptic.

Sterilization.—The process of rendering sterile.

Sterilize.—To render sterile.

Streptococcus.—A variety of bacteria that arrange themselves in chains.

Stupe.—A cloth wrung out of hot water and applied to the surface of the body.

Susceptible.—Lacking resistance to a disease.

Susceptibility.—The condition in which resistance to a disease is low.

T

Terminal.—Ending—ceasing.

Tissue.—A collection of cells having the same function.

Toxin.—A poison produced by the action of micro-organisms.

U

Uterus.—The womb.

V

Vaccinate.—To inoculate with a poison in order to bring about immunity to a disease.

Vaccine.—Any substance which if introduced into the body causes the formation of protective substances.

Vitamin.—One of a group of substances of unknown composition, present in small amount in foodstuffs, which are essential to metabolism.

Vomit.—Vomited substances.

INDEX

- Abrasion, 313
- Adenoids, 4, 153
- Aged, care of, 274
- Ailments and emergencies, 244
- Alcohol, 239, 198
- Antitoxin, 71, 143
- Appliances, 206
 - bed cradle, 209
 - bed table, 210
 - support for, back, 207
 - head, 207
 - knee, 207
- Applications, local, 220
 - cold, dry, 231
 - cold, moist, 231
 - counter irritants, 232
 - mustard leaves, 233
 - paste, 233
 - hot, dry, 225
 - bricks, 227
 - electric pads, 227
 - flannel, 227
 - hot water bottle, 225
 - salt and sand, 225
 - hot moist, 228
 - poultices, 229
 - stupes, 228
- Aromatic spirits of ammonia, 305, 308
- Artificial feeding for baby, 123
- Assimilation, 4, 258
- Attendant, 167, 287
- Babies, 100
 - bath, 112
 - bed, 108
 - birth registration, 104
 - bladder control, 136
 - bottles, nursing, 126
 - care of, eyes, 115
 - genital organs, 116
 - mouth, 116
 - nostrils, 116
 - clothing, 109
 - crying, significance of, 133
 - development of special
 - senses, speech, 131
 - teeth, 131
 - diet, 121
 - excretions, 117
 - regularity of, 135
 - exercise, 119
 - fresh air and sunshine, 117
 - growth and development, 129
 - habits, 133
 - hygiene of, 100
 - mortality, 101
 - mothers milk for, 122
 - muscular development, 130
 - nipples, rubber, 127
 - nursing, 107
 - sleep, 119
 - toilet tray, 107
 - toys, 137
 - water, 125
 - weaning, 128
 - weight and length, 129
- Bacteria, 220
- Band, baby, 110, 112
- Bath room, arrangement, 20
 - care of, 27
- Baths, 8, 193
 - baby, 112

- Baths, bed bath, 195
 - cleansing, 8, 193
 - cold, 8
 - cooling sponge, 204
 - daily, 8, 156
 - foot, 201
 - hot, 8
 - mustard, 201
 - tub, 193
- Bed room care, 29
- Bed sores, 212
- Bedpans, 214
- Beds, practical, care of, 40
 - daily airing, 48
 - dimensions, 40
 - making of, 45
 - selection of, 39
- sick, for the, 49
 - dimensions, 50
 - making occupied bed, 54
- Bedspread, 43
- Bedstead, 39, 50
- Birth registration, 103
- Blankets, 43
- Bleeding, 312
- Blindness, 116
- Blood poison, 220
- Board of Health, 327
- Bodily defenses, 68
- Boils, 221
- Breast feeding, 122
- Bruises, 315
- Burns, 310
- Calories, 5
- Cancer, 77, 79
- Carriers, 66
- Charts, 286
- Chickenpox, 291
- Child, preschool, 141
 - immunization, 142
 - nutrition, 145
 - parental cooperation, 147
 - physical defects, 146
- Child, preschool, protection from
 - infection, 141
 - quarantine, 142
- Child, school, 149
 - amount of sleep, 161
 - care of, 149
 - clothing, 159
 - play and exercise, 161
 - with defective hearing, 154
 - with defective teeth, 11, 155
 - with enlarged or diseased adenoids, tonsils, 153
 - with eyestrain, 152
 - with incorrect posture, 156
 - with physical defect, 151
 - with tendency to nervousness, 162
- Children diseases of, 291
- Chills, 315
- Chloride of lime, 292
- Chronic patient, the, 271
- Cleanliness of, houses, 25
 - person, 8, 156
 - sick room, 190
- Clothing, infants, 109
- Cold applications, 231
- Colds, 144, 254
- Colic, 299
- Comforters, 43
- Communicable diseases, 64, 291
- Community health, 322
- Compresses, 231
 - for eye, 232
 - for head, 231
- Conditions affecting nervous system, 303
- Constipation, 7, 247, 261, 276
- Convalescent patient, the, 266
- Convulsions, 304
- Cough, 95
- Counter irritants, 233
- Croup, 316

- Degenerative diseases, 74
- Dentifrice, 12
- Diapers, 111
- Diarrhea, 253
- Dick test, 71
- Diet, for infants, 121
 - for school child, 155
 - for the sick, 260, 283
 - full, 261
 - light, 261
 - liquid, 260
 - soft, 260
 - in relation to elimination, 6
 - in relation to teeth, 12
- Digestive process, 258
- Diphtheria, 71, 143, 290
- Disease germs, 281
 - incubation period, 282
- Diseases, communicable, 62
 - control of, 65
 - non-communicable, 74
 - transmission of, 63, 281
 - of children, 289
 - of middle life, 74
- Disinfectants, 239, 292
- Disinfection of, bath water, 293
 - bowel and bladder discharges, 292
 - hands, 293
 - linen, 294
 - nose and throat discharges, 292
 - room, 295
 - terminal, 295
 - utensils, 294
- Drafts, 24
- Drainage, 31
- Draw sheet, 53
- Drinking fountain, 324
- Drugs, action of, 245, 248
- Dust, effect on health, 27
- Ear, disorders affecting, 300
 - earache, 301
 - foreign body in, 301
 - insects in, 301
- Elimination, 4, 5, 156, 259, 276
- Emergencies, 298
- Enemata, 215
 - directions for giving, 216
 - for baby, 217
- Environment, 2
 - community, 1, 326
 - for baby, 100
 - home, 1, 2, 19
- Excretions, 95
- Exercise, 4, 6, 16, 161
- Eye, compresses for, 231, 302
 - foreign body in eye, 302
 - styes, 302
- Fainting, 305
- Fatigue, 14, 25
- Feeble-mindedness, 2
- Feeding of, infants, 122
 - the sick, 258
- First aid materials, 242
- Flaxseed poultice, 230
- Flies, as disease carriers, 35
- Floors, 26, 186
- Fomentations, 228
- Food, 4, 6, 155, 258
- Foot bath, 201
- Fresh air, 4, 19, 117, 187
- Fumigation, 296
- Furnishings, of home, 21
 - of nursing, 108
 - of sick room, 185
- Garbage, 30, 31
- Germes, 62, 282
- Glossary, 336
- Habit, of evacuation, 5
 - of observation, 84
 - training of babies, 132
- Habits, 144, 164
 - food, 148

- Habits, health, 147, 149
 - mental, 148
- Hair, care of, 199, 335
- Handkerchief, 144, 156, 283, 292
- Hands, 10, 66, 145, 286
- Head rest, 207
- Headache, 306
- Heat, application of, 225
 - exhaustion, 309
- Heating of, houses, 23
 - sick room, 188
- Heredity, 1, 82, 162
- Hiccough, 306
- Hives, 311
- Home attendant, 167
 - conservation of strength, 169
 - dress, 169
 - duties, 168
 - responsibility, 170
- Hospital care, 287
- Humidity, 22
- Hygiene, 1, 11

- Illumination, 24
- Immunity, 68
- Immunization, 142
- Incubation period, 282
- Infancy, see baby.
- Infections, 9, 221
 - control of, 66
 - protection from, 141
- Infectious diseases, 290, 314
- Inflammation, 220
- Inhalation, 253
- Insects, as disease carriers, 36
 - bites and stings, 310
 - in ear, 301
- Intestine, 258
- Inunction, 254
- Invalid, 271
- Isolation, 286
- Ivy poisoning, 311.

- Kitchen, 19, 20, 25
- Laboratory, 20, 25
- Laundering, 30, 112
- Laxative, 6, 238
- Layette, baby's, 112
- Lighting, of house, 24
 - of sick room, 189
- Lime, 292
- Linen, bed, 42, 52
 - disinfection of, 294

- Mattresses, 40, 51
 - care of, 41, 51, 295
 - material of, 40
- Measles, 72, 291
- Medicine cabinet, 20, 235
 - contents of, 237
- Medicines and remedies, 235
 - administration of, 249, 251
 - amateur dosing, 246
 - care of, 236
 - inhalations, 253
 - inunction, 254
 - medicine cabinet, 235
 - miscellaneous appliances, 243
 - miscellaneous remedies, 238
- Menstruation, 317
- Mental conditions, 96
- Mental illness, 80
- Micro-organisms, 62
- Milk, as disease carrier, 65
 - as food, 257
 - for baby, 123
 - pasteurization of, 335
 - protection of supply, 323
- Missed cases, 67
- Moisture, 22
- Mosquito, 36
- Mouth, care of, 198
 - hygiene, 199
 - wash, 199
- Mustard, foot bath, 201
 - leaves, 233
 - paste, 233

- Nausea and vomiting, 300
Nervous disorders, 2, 162
Nipples, 127
Non-communicable diseases, 74
Nosebleed, 317
Nursing bottles, 126
Nutrition, 4, 145, 155
- Occupation, for aged, 277
 for chronic patient, 273
 for convalescent patient, 270
- Pain, 97
Parasites, 62
Pasteurization, 335
Patent remedies, 248, 318
Pathogenic organisms, 64
 access to body, 64
Patient, care of, evening, 177
 hair, 199, 335
 morning, 173
 mouth and teeth, 198
 night, 179
 skin, 211
 with colds and slight infections, 282
 with communicable diseases, 281
 with more serious infections, 285
 with tuberculosis, 288
 changing, gown, 196
 pillows, 58
 sheets, 54
 feeding helpless, 263
 lifting helpless, 58
 moving helpless, 58
 serving food, 262
 sitting up in chair, 173
 sleep, 177, 179
 turning in bed, 57
Personal hygiene, 8, 65
Physical examinations, 76
Pillows, care of, 42
Pillows, cases, 42
Play, 4, 161
Porch, sleeping, 21
Posture, 4, 7, 156
Poultices, 229
Prenatal care, 102
Pre-school child, 141
Prickly heat, 312
Privy, 31
Protection of life and health, 326
Public, cleanliness, 325
 conveniences, 324
 drinking fountain, 324
 recreation, 327
 sanitation, 65, 324
 toilets and lavatories, 324
Pulse, 90
 method of feeling, 91
Pus, 222
- Quarantine, 142
 termination of, 294
Quilts, 43
- Records, 98, 181
Recreation, 16
Refrigerator, 26
Relaxation, 15
Respiration, 92
Rest, 14, 161
Routine, of sick room, 170
Rubber, bag, 225
 goods, 244
 nipples, 127
 sheets and pillow cases, 52
 toys, 137
- Saliva, 10, 258
Scalds, 310
Scarlet fever, 72, 143, 291
Schedule for baby, 138
Schick test, 71, 143
Secretions, 10
Sequelae, 285

- Sewage, 31
 Shampoo, 200
 Sheets, 42, 52
 Shock, 307
 Shoes, proper kind, 159
 Sick room, care of, 183
 choice of, 184
 furnishings, 185
 lighting, 189
 order of, 190
 ventilation, 187
 Sickness, indications of, 84
 Skin, 8, 211
 Sleep, 13
 for babies, 119
 for children, 161
 how induced, 177, 179
 sun porch, 21
 Sleeping, porches, 21
 rooms, 20
 Sleeplessness, 308
 Smallpox, 69, 142
 Snake bites, 318
 Sore throat, 320
 Special senses in sickness, 93, 97
 Sprains, 321
 Sprays and gargles, 252
 Stimulants, 238, 305, 307
 Stupes, 228
 Styes, 302
 Sunshine, 4, 19, 117, 189, 296
 Sunstroke and heat exhaustion, 309
 Support, devices for giving, 206
 Suppositories, 254
 Symptoms, 84
 of infectious diseases, 282, 290
 objective, 87
 subjective, 97
 Syringe, 218

 Tables, average heights and weights, men and women (Life Extension Institute), 334

 Tables, control of communicable diseases, 291
 infant feeding, 124
 weight-height-age, birth to school age (Woodbury), 330, 331
 weight-height-age, boys and girls (Baldwin & Wood), 332, 333
 Teeth, 4
 care of, 11, 198
 cleanliness, 11
 dentifrice, 12
 development of, 131
 examination, 11
 prenatal attention, 13
 preventive dentistry, 12
 Temperature, 87
 adults, 87
 babies, 89
 houses, 22
 method of taking, 87
 normal, 88
 sick room, 188
 variations of, 89
 Thermometer, care of, 87
 clinical, 87
 Tongue, 94
 Tonsils, 4, 153, 291
 Toxins, 62
 Toxin-antitoxin, 71, 143
 Tray, toilet, for baby, 107
 for sick, 262
 Tuberculosis, 1, 24, 78, 288
 Typhoid fever, 70, 287

 Urine, 95

 Vaccination, 69, 142
 Ventilation, 13, 22, 118, 187
 Visitors, in sick room, 175
 Vitality, 2, 172
 Vitamins, 4, 257
 Vomiting, 95, 238, 300

- Waste, 4
- Water, 6, 125
 contamination, 33
 medicinally, 261
 supply, 33, 324
- Weaning, 128
- Weight, loss of, 96
- Weight-height-age, tables, birth
 to school age (Wood-
 bury), 330, 331
- Weight-height-age, tables, for
 boys (Baldwin and
 Wood), 333
 for girls (Baldwin and
 Wood), 332
 for men and women (Life
 Extension Institute),
 334
- Wounds, 312
 dressing, 314

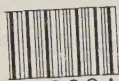




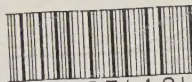
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